

Ontario Department of Education

BULLETIN NO. 1

1914

The Montessori Method

AN EXPOSITION AND CRITICISM

BY

S. A. MORGAN, B.A., D.Ped.

Principal, Normal School, Hamilton



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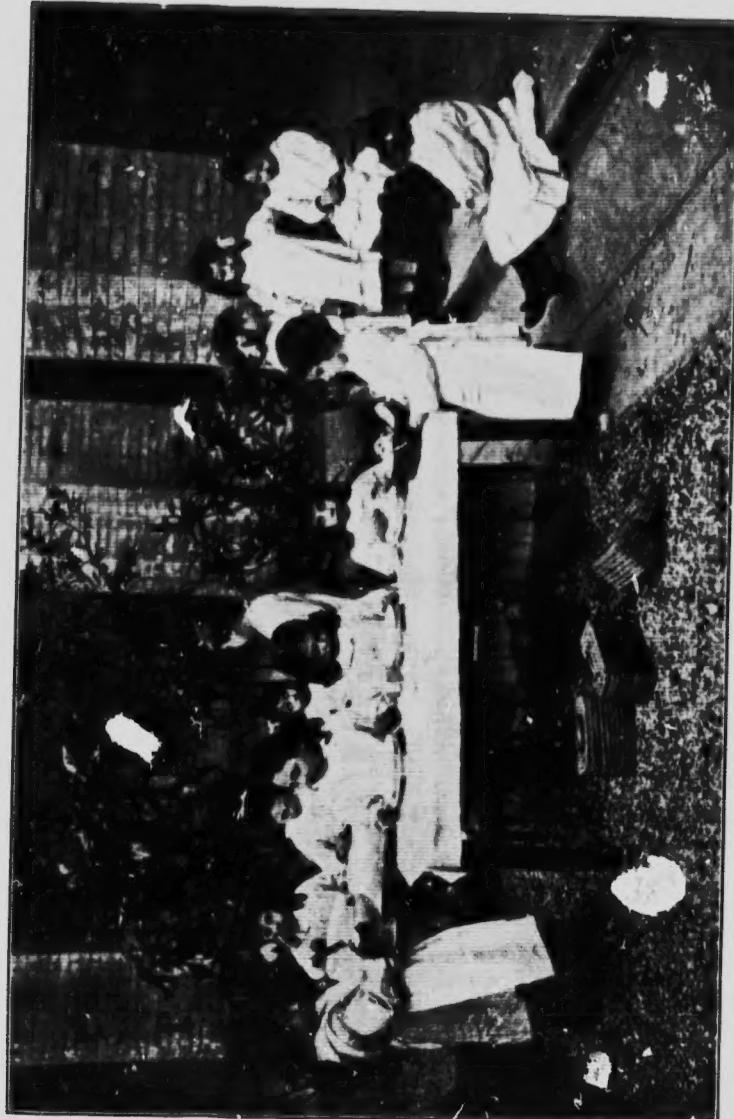


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Montessori children at luncheon

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PREFATORY NOTE

This exposition and criticism of the Montessori Method is the first of a series of Bulletins on subjects of interest to educationists which the Department of Education intends to publish from time to time.

Dr. Morgan, the author, possesses special qualifications for the preparation of this Bulletin. He is the Principal of the Hamilton Normal School and an experienced teacher of Psychology; and, besides seeing the didactic apparatus of the Montessori system in use during a recent visit to the United States, he had an opportunity of discussing the merits and demerits of the Method with teachers of that country who are familiar with the subject.

Since the publication of Dr. Montessori's "The Method of Scientific Pedagogy," the system as set forth therein and the apparatus of the House of Childhood have attracted world-wide attention in educational circles. The Minister of Education, accordingly, believes that this Bulletin will prove interesting to those who are concerned in the problems of elementary education, and especially in the problem of providing for the education of the backward children in our Ontario schools.

The Kindergarten Regulations for the Ontario schools are at present being revised. A set of the didactic apparatus has been supplied by the Minister to each of the Provincial Normal Schools for the purpose of experimentation, and in the settlement of the course the reports of the staffs as to the advisability of introducing the Montessori Method in any form will be duly considered.

The Minister acknowledges with thanks the permission given him by Frederick A. Stokes Company, of New York, and the Methodist Book Room, of Toronto, to use some of the illustrations that appear in the American translation of Dr. Montessori's work, and by The House of Childhood, of New York, to use some of the illustrations of the didactic apparatus manufactured by that firm.

THE MONTESSORI METHOD

INTRODUCTION

To English-speaking students of the Science of Education, perhaps the most interesting event of the present year (1912) has been the publication of an English translation* of Dr. Maria Montessori's Italian book *Il Metodo della Pedagogia Scientifica Applicato all'educazione nelle Case delle Bambini* (The Method of Scientific Pedagogy as Applied to Child Education in "The Children's Houses.") The author's own exposition of her pedagogical theory and practice therein contained has enabled such students to form a proper estimate of an educational system which had previously been known to them only through magazine articles and the indefinite and often conflicting reports of returning visitors.

At the outset, it should be stated that the attitude of our leading educators toward the principles and practices set forth in the work, and commonly spoken of as the Montessori Method of Education, is by no means uniform. By some—and they are in the majority—it is claimed that the principles merely restate from a local view-point the fundamental principles of the nineteenth century psychological educators; and that the author's achievement has been, in the main, but an attempt to apply, in accordance with these principles, to a special class of young and backward normal children, certain pedagogical devices more commonly used in the training of defectives. By others, however, Dr. Montessori is hailed as the discoverer of a system of education so unique and original in the character of its materials and method, and so comprehensive in the scope of its possible application, that, notwithstanding its present limited application, it is destined to revolutionize the methods that now prevail in every phase of educational work. Without admitting the extravagant claims of the enthusiastic admirers of the system, we nevertheless believe that Dr. Montessori's work is sufficiently unique in its method and material, to warrant us in believing that a study of her system may contribute something of value to our own educational practice, especially in the Kindergarten and the primary grades. Throughout her book the author seems also to take special delight in attacking the ordinary school, its teachers and their methods. In almost every case, moreover, it appears clear that unless the Italian schools are at least a century behind those of this continent, these attacks are for the most part unjustifiable, and that a careful

* The Montessori Method. Translated from the Italian by Annie E. George. Published by Frederick A. Stokes Co., New York. Price, \$1.50. A Canadian Edition is published by the Methodist Book Room, Toronto, at \$1.75.

examination of her system will show that anything it possesses of permanent pedagogical value is already recognized in some form in the educational practices of the trained teachers of Canada and the United States. As scientific teachers, however, we must consider carefully such attacks upon our present methods, and be willing, after applying suitable tests, to adopt anything which may commend itself to our judgment. It seems desirable, therefore, that the great body of our public school teachers should be given a better acquaintance with the leading characteristics of the Method than is likely to result from magazine articles and the limited circulation of the larger volume.

THE INCEPTION OF THE SYSTEM

Author's preparation for her work

Experience with defectives

Studies philosophy, psychology, and elementary education

Applies method for educating defectives to normal children

It was while acting as assistant doctor at the Psychiatric Clinic at the University of Rome that Dr. Montessori first became interested in the problem of education. Being called upon in connection with her official duties to visit the sick in the insane asylums, she thereby came in contact with idiot children and with the remedial efforts being put forth on their behalf. Through her interest in these children, her attention became centred upon the methods employed in the education of defectives and more particularly upon those formulated by Edward Séguin for the education of idiot children. As a result of her observations she came to the conclusion that their mental defects required pedagogical rather than medical treatment. Having been requested to expound her views in a course of lectures, she began a movement which led to the establishment of a State Orthophrenic (or Mind-straightening) School for very backward children, of which she was the directress for over two years. Later an institute was opened to which were admitted idiot children from the insane asylums; and, being anxious to demonstrate the truthfulness of her views, Dr. Montessori devoted herself to a study of the various methods employed in the education of defectives, and to the perfecting of her own methods and materials, instructing her teachers and applying and testing her system in the actual teaching of the children. As a result of her success, she became convinced that her own methods were more rational and effective than those employed in the ordinary Italian school, and that they could be applied to the education of normal children as well. She was, accordingly, seized with a desire to formulate her methods so that they might be applied in the education of the ordinary child, hoping thereby to revolutionize the methods of education in vogue in the Italian schools. Feeling the need of further preparation for her task, she devoted herself for some time to the study of philosophy and experimental psychology, and to a careful investigation of the methods followed in the elementary schools of Italy.

When, as a result of these investigations, the pedagogical principles of her system began to take on more definite form, and the possibility of applying her Method to the education of normal children became more evident, Dr. Montessori began to look for an opportunity to test her system with a class of such children. This opportunity was

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accidentally afforded her, when, in January, 1907, she was permitted to open an infant school in a model tenement house built by the Roman Association of Good Building in one of the most wretched districts of the city of Rome, the Quarter of San Lorenzo. This school was designated "The Children's House." Other "Children's Houses" were soon established; and, as a result of her experiments, Dr. Montessori has succeeded in formulating more definitely the principles and methods to which she attributes the success of her own teaching, almost all of which she affirms to be wanting in the practice of the ordinary school.

Opens the
Children's
House in
Rome

THE ORGANIZATION OF THE CHILDREN'S HOUSES

The development of the Montessori Method as a system of pedagogy has taken place so largely within the environment and through the practical work of the Children's House, that it will be necessary to a proper appreciation of the evolution of the system to describe briefly the general aim and organization of these "Houses." General aim and organization of the Children's House The Children's House is in reality a room in a tenement to which are admitted the children of the tenants between the ages of three and seven. Connected with each Children's House is a garden situated in the court-yard of the tenement and in direct communication with the school-room. The staff in charge of each Children's House consists of a caretaker, a physician to look after the health of the children, and a directress, who lives within the tenement and looks after their physical, mental, and moral development. The directress also consults with the parents concerning the welfare of each child and decides the programme and the hours of the Children's House, which, on account of the occupations of the parents, usually include the whole working day. As the cost of maintaining the Children's House is borne by the Association in charge of the tenement, the parents of the children are at no expense, unless it be in an indirect way through the rents paid to the Association. To take advantage of the Children's House, however, the parents must undertake to send their children regularly, clean and properly clothed, to show proper respect to those in charge of the House, and to co-operate with them in the physical and moral education of the children. Failure on the part of either the parent or the child to pay due regard to these provisions leads to the expulsion of the child from the House.

From the above it is evident that, in two respects at least, the Unique features: Children's House furnishes an ideal environment for the evolution of a pedagogical system.

First: The position of the school within the tenement occupied by the parents and the children is likely to set up a co-ordination between the home and the school, which, in some degree at least, educators have always felt necessary for the highest achievement in educational work, but which under ordinary circumstances is seldom adequately realized.

Secondly: Since the directress must live under the same roof with the families of which she is the intellectual leader, she is afforded an exceptional opportunity of observing the community life, and thus obtaining a social outlook that enables her to direct the educational efforts of the school to their highest aim—individual development and social regeneration.

THE MONTESSORI METHOD

Application
of the
Method
limited

On the other hand, it may be argued that the peculiar features relating to these Children's Houses, notably the relationship of the teacher and the parents, and the teacher ages of the pupils, make it unlikely that a universal system of education could be evolved out of their educational practices, and especially one that would be applicable to our more democratic conditions. It is no doubt unlikely that the experiences of the average Canadian home could, and it is even more undesirable that the should be made a subordinate adjunct of the school within the life of the very young child. The fuller and more natural life of the average Canadian home will, on the whole, furnish a more desirable environment for enriching the experiences of the child, at least between the ages of three and five, than would be furnished through the formal environment of the best of the Children's Houses. Nor does it seem likely that the most skilful of directors will fulfil the duties of a mother for these very young children, or that our civic conception of compulsory education would ever allow children to be excluded, as under the Montessori system they may be excluded, from these necessary advantages on account of the faults of either their parents or themselves.

But
limited
application
not a con-
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validity

By some, it may be argued, further, that as life is progressive, the educative process must reflect this necessarily varying aspect, and that no methods and materials can lay claim to universal validity on the ground that they have been effective in such a limited application to children of the pre-school period. But on the other hand it must also be borne in mind that life is not made up of separate periods, each requiring a totally different pedagogical treatment. On the contrary, it displays throughout, both physically and mentally, a single process of growth, and such uniformity must accordingly, in part at least, manifest itself also in the process of education. Consequently, though a certain educational method has had but a very partial application, it must, if found really effective in promoting life development, contain some universal principle which awaits only the touch of genius to adapt it to other phases of the educative process. It is, therefore, reasonable to conclude from its claimed success that, notwithstanding its limitations, the Montessori Method may contain some message for our teachers. To ascertain this message is the main object of this treatise.

THE LAW OF LIBERTY

The child
develops
through
its own
energies

The fundamental law underlying the Montessori Method is designated by the author the Principle of Liberty, or the Principle of Free Activity. According to this law the child both lives and develops into the fulness of life through its own forces. In other words, child life is revealed only through free activity, and develops only through the spontaneous manifestation of its own energies. Education, therefore, as a means of awakening and developing life, must permit the "free natural manifestations of the child." must respect the "first indications of individuality," must leave the child "free to develop," and must "avoid the arrest of spontaneous movements and the imposition of arbitrary tasks."

To many this principle will seem but an echo of the Froebelian Law of Self-Activity, and the two laws undoubtedly have much in common. Froebel, for example, tells us that the child's mind "grows by self-revelation," that it is the life work of all "to unfold their essence," that education consists in leading man to a "free representation" of an inner law, which "demands and requires free self-activity." Again, he says that "education should be passive rather than prescriptive," otherwise, we shall lose the "free spontaneous representation" of the divine in man; and that "all interfering education must of necessity hinder and destroy." But notwithstanding the almost identical wording of the fundamental laws of the Froebelian and the Montessori systems, it will be found that these two laws differ widely in the view-points from which they were respectively conceived, and that this difference leads to differences in their educational application.

As a philosophic educator, Froebel formulated his Law of Self-Activity from the viewpoint of the idealistic philosophy of the nineteenth century. In this philosophy the universe is viewed as an orderly system, possessing unity through the pervading presence of an intelligent spirit. By virtue of this spiritual unity of the whole, each individual within the universe, and, therefore, each individual child, has within it, according to Froebel, a "divine effluence," "a formative and creative instinct" which constitutes its essence. And further, by virtue of this law of unity, the principle of life-unity within the child enables him to reveal within his own life the unity of the outer world. Life development, therefore, consists in revealing or realizing in our consciousness the unity of the outer world; that is, in coming to a practical knowledge of our physical and social environment, and in yielding a thoughtful submission to the eternal laws governing the same. Since, however, this knowledge is possible only on account of the inner principle of life-unity possessed by the individual, the development of the intelligent life must proceed as a growth of this inner principle; that is, from the free self-activity of the individual. As a guide to life development education must, therefore, call forth this inner free activity of the child, and cause him, through his own activity, to realize the unity or meaning of the universe and thus enter into the fulness of life.

While Froebel thus rests his Law of Self-Activity upon a philosophic basis, it is from a biological conception of life that Dr. Montessori, as a physician and a student of nineteenth century biology, evolves the fundamental law of her system. In her present exposition of her method she has not indeed presented as explicitly as one would desire the connection between her conception of life and her pedagogical law of freedom; but in view of various statements throughout the work, her argument may be represented in the following form:

It is an accepted biological fact that life manifests itself only in individual form; in dealing with life, therefore, we must necessarily deal with *single* living individuals. Biology teaches us, further, that the life of the individual is progressive, and is destined to expand and develop itself within the limits set upon it by heredity. This progression is, however, occasioned, not by external conditions, but by virtue of the nature of life itself. In other words, there is implanted

Liberty
versus
Self-
Activity

Froebel's
law of Self-
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principle of
unity

Basis of the
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Statement
of the
author's
argument

within the individual, as an interior force or activity, a biological tendency which constitutes the true origin of its development. It is, moreover, through the free spontaneous manifestation of this inner life-force, that life progresses to a realization of its true destiny.

As a single living individual, however, man stands at birth in a position of physical and mental inferiority, being shut in by an opposing environment. This opposing environment includes both his own body, whose movements are not yet co-ordinated, and the physical and social bonds of an exterior world. But by the spontaneous exercise of this inner force which distinguishes him as an individual the child is able to grow both physically and mentally, and thus free himself from the bonds placed upon him by his physical and social environment. Education, therefore, must call forth these inner tendencies, and thus lead the child to overcome the external forces of his environment.

Views personal independence as an out-growth of liberty

Author's statement of her theory of independence

As a result of the foregoing biological law, man, it is claimed, is enabled through the exercise of his inner life force to progress toward a state of actual freedom or *Independence*. For, through the satisfying of this inner law of free activity he spontaneously develops himself both as a physical and as an intelligent individual, and thus obtains a mastery over the environing and circumscribing forces. In this way, the child advances to the attainment of the ideal life, namely, a life of perfect freedom and independence in which he shall be able of himself "to achieve the satisfaction of his own individual aims and desires." So long, for example, as the child must be fed and dressed by others he is living an imperfect life of servitude; but as he proceeds, being impelled by the need for self-development, to master the physical and intellectual conditions for feeding and dressing himself, to that extent he becomes a free and independent, and therefore a perfect individual.

This conception of the perfect life as a state of freedom and independence, and of the imperfect life as one of accepted service and dependence upon our surroundings, is especially emphasized by Dr. Montessori, and forms the key to much of her educational methods and materials. She says, for example:

"Little children from the day they are weaned are making their way toward independence."

"Any one that believes that it is an advantage for a man to be served by man admits servility as an instinct."

"He who is served is limited in his independence."

"The man who, through his own efforts, is able to perform all the actions necessary to his comfort and development in life conquers himself, and in so doing multiplies his abilities and perfects himself as an individual."

"We must make of the future generation powerful men, and by that we mean men who are independent and free."

"I do not wish to be served because I am not an impotent."

Theory based on individualism

But this theory of the perfect life as one of freedom and independence, reflects the doctrine of eighteenth century individualism, which erred in maintaining that man is by nature a distinct and separate individual, having an existence and destiny quite independent of others. And although Dr. Montessori herself, indeed, states that man is also social, nevertheless the conception of life which underlies the foregoing

doctrine of freedom and independence, will, on account of its strong biological bias, be found, in two respects at least, to be philosophically unsound. Theory not sound in two respects:

First: When Dr. Montessori asserts that "There exists only *one* real biological manifestation, the living individual, and toward *single* individuals, *one by one* observed education must direct itself"; and then further states that the perfect life is one in which the individual "shall be able of *himself* to achieve the satisfaction of his *own individual aims and desires*," and also that "social man is a natural man *yoked to society*," she seems, without question, to be making the individual the complete unit of life and of educational effort. To this conception of life, upon which her system is so largely based, objection must necessarily be taken. In a true conception of life, not the individual but the family must be taken as the organic unit. It is upon the family that the individual is by nature dependent, first for his physical existence, and secondly, for the physiological habits, the inherited instincts and tendencies, and the opportunities which make possible his future development. The perfect family life, moreover, does not imply on the part of its members a life of independence in which each individual member seeks to attain his own aims and desires; it rather implies a life of mutual service. Dr. Montessori, on the other hand, emphasizes the teaching of movements that are valuable in performing the ordinary acts and duties of life in order that the child may be independent, or no longer "yoked to society." But surely these exercises should be viewed as valuable, not because they will make the child independent of his home relations, but because the acquired ability will make him more efficient to co-operate in the work of the home. The Great Teacher himself does not say that a man shall forsake father and mother to become a free and independent individual, but rather to co-operate in the formation of an independent home, and this, we maintain, constitutes the true unit of society. Consequently, true service implies not any limitation of life development or inferiority on the part of either member connected with an act of service, but rather a subordination of individual aims and desires to the promotion of the good of a larger organism, the social whole. Under no other conception of service would it be possible to accept division of labour as a mark of social and individual progress. The acceptance of social service, therefore, under normal social conditions is not to be viewed as a form of *slavery*, nor is a social man to be viewed as "a natural man yoked to society."

Secondly: Neither can we accept as a basic truth that principle of independence which affirms that life progresses by "over-throwing the obstacles which environment places in the way of its triumph." The doctrine of an opposition between the individual and his environment arose, in part, no doubt, from the author's application of her observations of defectives to an explanation of the law of development in normal life: for since the limitations in the intelligent life of defectives are occasioned by physiological defects in the organism, such, for example, as deafness, nearsightedness, etc., the work of their education consists in devising ways and means by which such defects are to be overcome. If, accordingly, the body is viewed as a phase of our en-

vironment, the development of such a defective may in a sense be said to depend upon his ability to overcome the obstructions which his body's environment "places in the way of his triumph;" but it would be philosophically unsound to apply this analogy to the lives of normal children and more general conditions of environment. The ordinary child is circumscribed not by his environment, but by the physical, physiological, and mental ignorance, which necessarily accompanies the early manifestation of the potentially social life which exists in every individual. Moreover, the perfection of this potentially social individual is possible only because his environment may be interpreted from a social and, therefore, from a beneficent standpoint, and thus render explicit the social tendencies within his own nature.

The Law of Social Interpretation

To appreciate the beneficent relation existing between the individual and his environment, it is only necessary to notice the attitude of the young child toward various objects within his physical environment, which attitude might be termed the Law of Social Interpretation. As the child stands face to face with a strange object, almost his whole attentive effort seems directed to a discovery of its motive or social significance. He is, for example, most actively interested not in the mere sight and touch of the broom, but rather in the motive or social significance of the broom as the *sweeping* thing, the fact which indicates its relation to social life. So, too, although he apprehends them through the senses, he is most directly attracted to the horse as the *driving* or *drawing* thing, to the pencil as the *marking* thing, and to the hammer as the *pounding* thing, all of which features represent the motive or social significance of the objects. Hence, man is perfectly not by an arbitrary mastery over the forces of an opposing environment, but rather by the adequate interpretation, in accordance with his social tendencies and instincts, of the social and, therefore, beneficent aspects of his environment.

Elements of truth involved in the Law of Liberty

In spite, however, of her defective application of the basic principle of Liberty and Independence, one feature of that law has led Dr. Montessori to place due stress upon an important and too often neglected phase of educational work. An analysis of the process of social interpretation by which a child masters the social motive or significance of his environment shows us, first, that he observes these objects in order to discover the social motive; and, secondly, that he discovers this social motive in order to participate in social action, or to engage in mutual social service, this active participation in turn giving a fuller meaning to the social significance of the object. It is from this latter fact that the true nature of free activity is, in part at least, to be explained. Education, therefore, as a process of leading the child into the fulness of social life, must especially keep his attention fixed upon the second phase of this process, and labour not merely to assist in the acquisition of social knowledge but also in the acquisition of social skill. This implies as a corollary that education should assist the child to interpret theoretically, or by observation, only in order to have him live these observations in his action. But too often the work of education is inclined to make the mere acquisition of knowledge the complete process, in the expectation that thereby the individual will be perfected. The extreme emphasis placed by Dr. Montessori upon independence of action has led in her educa-

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tional practice, as we shall see later, to a certain emphasis being placed upon the expressive side of the learning process. Moreover, the biological bias underlying her conception of individual freedom has caused her to emphasize strongly the development of certain individual powers, as, for example, sense discriminations. Valuable, however, as these powers are in themselves, a development of such expressive skill in all phases of life purely from the standpoint of individual freedom and independence, and an ability to satisfy our own individual aims and desires, cannot be accepted as the legitimate object of a rational system of education. Such a conception would ultimately lead to a deification of the principle of competition and the acceptance of the doctrine of the survival of the fittest as a law of morality.

THE FUNCTION OF THE TEACHER

Controlled by her interpretation of the law of spontaneous freedom in her consideration of the problem of the function of the teacher, Dr. Montessori makes first and most important the observation of child activities. Her contention is that, if the perfecting of the child is to consist in allowing his free natural manifestations to achieve freedom or through his own mastery of the opposing forces in his environment, the main duty of the teacher is merely to observe and direct these movements along channels that shall lead to such perfecting without interfering with his liberty. Although, therefore, in such observations the teacher may see the child making mistakes, as, for example, when picking out or comparing objects, she must not, at least in early lessons, let the child know that he is making a mistake, for this will lead to unnatural effort, and thus interfere with free natural expression. For the same reason, as we shall see later, many of the Montessori exercises provide for auto-education and self-correction, in order that the child may be perfectly free in his exercise. And, further, whenever it becomes necessary for the teacher to intervene, for information, it is admitted, must sometimes be given, she is told that she shall "to the greatest possible extent, limit her intervention."

is no doubt true that a teacher may sometimes force her assistance upon the pupil and thus interfere with the child's own achievements. The principle of mere observation in school work cannot, however, be accepted as a universal pedagogical law. For, as seen above, an efficient development of the child's experience demands the acquisition of the social significance of the various elements of his environment. Such acquisition certainly cannot always be secured by merely bringing together the learner and the objective materials, no matter how skilfully the latter may be presented. Granted, for example, that we present to a child a box with three compartments and in the right hand compartment placed a single splint, in the next a bundle of ten and in the third ten of these latter united into a single bundle, how long must the child be left with the bundles in order to discover *spontaneously* the secret of our system of numeration? Experience teaches us also that a child shows greater creative ability in discovering new problems than executive skill in solving them, and that failure in the latter inevitably leads to

Author
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discouragement and checks development. It is, moreover, a recognized principle of education that objects often have no social significance to the child unless he has aroused in his consciousness the ideas needed for their interpretation. From these facts alone it is evident that, for the child's social mastery of his surroundings, the mediation of the teacher is very often necessary, and to refute sympathetic and reasonable aid under these conditions would be pedagogically most unwise. Assuredly reasonable stimulation from the teacher does not necessarily imply any interference with the child's freedom; it implies rather making possible of the free working of his activity.

Moreover, to allow a child's mistakes to go uncorrected even for a time would have a disastrous effect upon his education. One of the most important factors to be kept in mind by the teacher is the law of habit. In much of our school work it is of vital importance to prevent the repetition of a mistake and thus guard against the establishment of incorrect habits; for psychology tells us that the pupil is assisted in forming the correct habit when he is provided promptly with a correct mental image of the ideal for which he should strive. It is only fair to Montessori to state that she recognizes this difficulty, and, as we shall see later, seeks to overcome it through the simplicity of the exercises to be given the young child. When speaking of the efforts of the child in his writing exercises she expressly says:

"To go forward correcting his own mistakes, boldly attempting that which he does imperfectly, and of which he is as yet unworthy, dulls the sensitiveness of the child's spirit toward his own errors."

The above criticisms are made, however, in order to warn our teachers against any one-sided attempt to reduce all school work to the requisition of auto-education in order to apply as a universal principle of pedagogy the doctrine of spontaneous freedom on the part of the pupil and passive observation on the part of the teacher, and thus identify *education* with *method*. But while objecting to the attitude of the teacher toward the pupil's work implied by the method of mere observation, so far as this method would permit initial effort on the part of the young child, and so far as it has aided in demonstrating that young children may carry on *suitable* exercises and, when necessary, make their own corrections without the direct intervention of the teacher, it may be accepted as pedagogically desirable.

LIBERTY AND DISCIPLINE

A weakness
in the
doctrine of
discipline
through
individual
freedom.

We shall now consider the function of the teacher in relation to discipline. It is in the consideration of this problem that the weak individualistic aspect of the Law of Freedom and Independence especially manifests itself. Viewing discipline from the standpoint of the liberty of the child, Dr. Montessori tells us that "discipline must come through liberty." By this she means that the free spontaneous movements of the child as they conduct him toward the attainment of the independent life and a self-mastery of his surroundings, will of themselves lead to the formation of such habitual acts as will develop into rules of conduct to regulate

, a recognized significance for was needed for that, for the on of the in and reasonable most unsound, not necessarily lies rather a late his future life. Such discipline is declared by the author to be a discipline, "not for obedience," but "for activity and work," and, in accordance with the principle laid down in the last section, the task of the teacher must be a passive one; she is to observe the child's active manifestations and note without intervening. In another connection, however, the author finds it necessary to limit the free activity of the child. She tells us that the teacher must discern between actions that are good and actions that are evil. Having in this way provided for interfering with the independence of the child, she is next compelled to open the door for *repressive measures*; for she distinctly states that the teacher must "check in the child whatever offends and annoys others"; and also that it is necessary to "suppress all those things which we must not do."

But here at once a pedagogical difficulty arises. On what basis is a teacher whose first duty is to observe the free manifestations of the child and who believes that only through such free activity and independence can the child form habits of conduct; on what basis, we ask, is the teacher to decide what activities she is to observe and what she is to suppress? To this question the Law of Liberty can give no answer, and Dr. Montessori herself can give but one answer, which calls upon the teacher to distinguish between the *freedom and desires of the individual* and the *good of others*; for in describing a situation within one of the Children's Houses she says:

"I saw children with their feet on the tables, or with their fingers in their noses, and no intervention was made to correct them. I saw others push their companions, and I saw in the faces of these an expression of violence; and not the slightest attention on the part of the teacher. Then I had to *intervene* to show with what absolute rigour it is necessary to hinder, and little by little *suppress*, all those things which we must not do, so that the child may come to discern clearly between good and evil."

Such a method, however, at once deprives the individual of the right "to achieve his own aims and desires," and unless we are to assume in such cases a mere opposition between the desires of the pupil and the teacher, she here sets up *social standards* of conduct in place of the pupil's desires. The law of individual freedom, in this way, falls to the ground and the will of the pupil is made to conform to a social standard. Hence, clearly, the author admits that perfect freedom is not found in the satisfaction of individual aims and desires, but in conforming these to a social standard whereby our own good will be identified with that of others. This is, of course, an admission that the perfect man is neither an "independent and free individual," nor "a natural man yoked to society," but is a member of a community, seeking a good that shall be applicable both to himself and to others.

Judging the two systems in this light, Canadian teachers, at least, will be unable to see why the author should extol the discipline of the Children's House over that of the ordinary school, unless the Italian school is very much inferior to our own. With us, at least, the average teacher does not set her will against the *free* and independent activities of her pupils, but merely applies, *when necessary*, those social standards of conduct to which all children should submit, and which the author herself declares are sternly enforced within her own Children's Houses.

a teacher to recognize fully social standards of conduct

Author admits defect

Ordinary school no more repressive than the Children's House

Strength
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doctrine

Freedom
under the
law

Conduct
may be
influenced
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instruction

The system
too largely
psychologi-
cal

With the author's emphasis on the importance of having our rules of conduct develop from our activities and become active habits in the daily life of the child all must agree. It is true, moreover, that such active living based on rules of conduct will make us in a sense free and independent; for, when the moral law conforms with our own desire, we may be justly said not to feel its compulsion as an external force. It is in this sense also that we are to interpret the doctrine that when the law is written in our hearts it will make us free. Such freedom and independence is, however, at least in theory, not that at which the Montessori system of discipline aims. The author distinctly states that she calls an individual disciplined when he is master of himself, and that to discipline a child is to lead him upon the road to independence; and this she explains to mean the leading of the child to the achievement of the satisfaction of his own individual aims and desires. Such a method, though it may provide for a discipline of practical shrewdness, seems to eliminate largely from its conception of discipline those elements of self-sacrificing morality which have met with the approval of the wisdom of the ages, and which, to many of us, must always remain the loftiest aspect of the truly disciplined life.

Moreover, when the author admits that her children display personal traits which must be suppressed by coercive measures, she must further admit that there may be valuable traits which the child may not manifest adequately through his own spontaneous movements. It is therefore, not the sole or chief duty of the teacher to observe passively the child's activities. It is her duty to observe because she finds in such observation an assistance to a more direct duty wherein she acts as an instructor; that is, as an interpreter and mediator between the child and his social environment. The active intervention of the teacher is, therefore, not to be confined to the suppression of the evil; it must also extend to the awakening and instilling of the good. Such intervention, indeed, will not only call for the work of active instruction on the part of the teacher, but will also afford new channels for the free activity of the child.

It must, in fairness to Dr. Montessori, be added that she does herself state that the aim of discipline is to have the child follow some rule of life. But the striking features of both the principles and the practices of her Method will show that, as a system of education, it finds both the aim and the process of education too largely in the psychological nature of the child. Dr. Montessori says that the teacher must have "an absolute respect for the phenomenon which she is to observe" and that "it is above all her function to direct the *psychic activity* of children." This inevitably places an over-emphasis upon the so-called development of the child's energies as the aim of education. For instance, in her opening remarks on the education of the senses, she states that "we must start *essentially* from a *method*," and that the directress "must be more of a psychologist than a teacher." This extreme emphasis upon method leads, as we shall see, to the conclusion that the aim of education is "to cause the child to *exercise* the senses." But mere exercise as such contains no guarantee that the resulting development will be along moral lines; for it is a recognized fact that a mere psychological

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education can make no distinction between good and evil, and must in itself allow the individual to develop as a mere animal—irrespective of moral standards. The tendency of Dr. Montessori's system, therefore, to find the ideals of education so largely in method would, if applied in a general system of education, almost surely neglect to enrich and reconstruct to an adequate degree the intellectual and moral experiences of the children. Thus it might be claimed that the truer definition of education is that which declares it to be * "an *interference* with natural development so as to secure a *richer experience* and a fuller exercise of the *higher powers*."

In the whole attitude of this method toward the teacher's function, it may be noted that Dr. Montessori has been too strongly influenced by her conception of the need of adapting the method of experimental Psychology to Child Study. Noting in such psychological experiments that the operator especially prepares the person to be experiment, Dr. Montessori rightly objects to a similar preparation of the child in the course of Child Study, and rightly maintains that in the application to pedagogy of the method of observation the rule must be that the operator or director must become a sympathetic observer of the spontaneous and unrepressed manifestations of the child. However, this doctrine is sound so far as regards Child Study in relation to pedagogy, it does not follow that we shall find in it a key to the full or even to the main office of the teacher, or to the work of the school. To extol child observation to the annihilation of instruction is to substitute a means for an end, since the value of Child Study lies in the guidance it affords to the work of physical, mental, and moral instruction. As has been already shown, the key to the purpose of education is to be found solely in the individual freedom and independence of the child, but in the guiding of his activities to a full and accurate interpretation of the social motives or meaning of his environment. Moreover, while this interpretation cannot be received passively, it is equally true that the mere spontaneous manifestations of the child can furnish an inadequate guide to the needs of the individual. Education, therefore, must be primarily a work of instruction, in which the teacher as well as the pupil must take an active part as a social interpreter.

On the other hand, teachers may well give heed to Dr. Montessori when she warns us not "to dominate the child through force, by the imposition of external laws, instead of making an interior conquest of the child, in order to direct him as a human soul." In this connection the following quotations from her book are deserving of the special consideration of the teacher. Speaking of the attitude of the adult toward the child in respect to discipline she writes:

"The first idea that the child must acquire, in order to be actively disciplined, is that of the difference between *good* and *evil*; and the task of the educator lies in seeing that the child does not confound *good* with *immobility*, and *evil* with *activity*, as often happens in the case of the old-time discipline. And all this because our aim is to discipline for activity, for work, for *good*; not for *immobility*, not for *passivity*, not for *obedience*."

"Children who are undertaking something for the first time are extremely slow. Their life is governed in this respect by laws especially

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THE MONTESSORI METHOD

different from ours. Little children accomplish slowly and perseveringly various complicated operations agreeable to them, such as dressing, undressing, cleaning the room, washing themselves, setting the table, eating, etc. All this they are extremely patient, overcoming all the difficulties presented by an organism still in process of formation. But we, on the other hand, notice that they are 'tiring themselves out' or 'wasting time' in accomplishing something which we would do in a moment and without the effort, put ourselves in the child's place and do it ourselves."

"We often speak of him as 'impatient' simply because we are not patient enough to allow his actions to follow laws of time differing from our own."

"The child, like every strong creature fighting for the right to rebel against whatever offends that occult impulse within him which is the voice of nature, and which he ought to obey; and he shows by violent acts by screaming and weeping, that he has been overborne and forced away from his mission in life."

Respecting discipline within the Children's House she says:

"The children work by themselves, and, in doing so, make a conquest of active discipline, and independence in all the acts of daily life, just through daily conquests they progress in intellectual development."

"It involves a conception of life more usual in religious fields than those of academic pedagogy, inasmuch as it has recourse to the spiritual energies of mankind, but it is founded on work and on liberty which are the two paths to all civic progress."

So far, then, as Dr. Montessori thus gives us a further warning against interfering unnecessarily with the activity of the child, her preference for a more passive method on the part of the teacher may result in good. And, indeed, from the above quotations, one is constrained to believe that in the matter of discipline her practice is, in general, more sound than her theory.

SUMMARY OF GENERAL PRINCIPLES

The following is a summary of the general principles of the Montessori Method as set forth above, and also of the criticisms of the writer of this treatise:

1. *Man biologically considered is a distinct individual.*
2. *At birth man is circumscribed by the conditions of an oppositional environment.*
3. *Man may obtain mastery over his environment through the exercise of the spontaneous activity with which he is biologically endowed.*
4. *Education is, therefore, to give free play to this spontaneous activity and thus develop the child into an independent individual.*
5. *The attaining of this independent life is conditional upon physiological and mental development through direct contact with the physical world.*
6. *Education must, therefore, come through the child's own effort, directed toward a mastery of physical educative materials and not through the intervention of human instruction.*

CRITICISMS

1. *Man is by nature not a distinct individual but a member of a social community.*
2. *His physical environment has been largely interpreted by man from the standpoint of social needs and has, therefore, obtained a social value and meaning.*
3. *As a social individual, man must learn to adjust himself to all phases of his environment from the standpoint of their social significance.*
4. *In this process each individual must aim to realize in his own life the achievements of the race.*
5. *This realization can be obtained not as a result solely of direct experience, but largely through an active process of instruction.*

SCHOOL ENVIRONMENT

In planning the environment of the "Children's Houses" the principle of liberty is again kept prominently in view. The effect of this principle is seen first in the lack of time-table, collective classes, and special lessons. The author states that the "collective lesson has been almost abolished." In its place the child applies himself to whatever type of exercise or occupation may attract him at the time. School work "must proceed by a method which shall make possible to the child complete liberty." Viewing the work of the Children's House merely as a type of home education for children of the pre-school age, no one will seriously object to this "complete liberty" of the child. If, however, in her attacks upon what is termed the "domineering methods of the common school," Dr. Montessori means that this "complete liberty" should permeate the atmosphere of all school work, then the principle cannot be accepted. Such complete liberty could result only in the pupils developing the habit of caprice. It is manifest, moreover, as we have shown, that the true aim of education is to develop not a mere independent individual, but a socially efficient individual, and that such an individual must sooner or later be brought to join, as a corporate member, in mutual or co-operative effort. For the development of such a corporate life tendency, nothing can be more beneficial than the corporate life of the school, for much of the value of a school will be found in the character of its orderly corporate life. No real school can afford to sacrifice such life to the fetish of *complete individual liberty*.

Liberty is also, in Dr. Montessori's system, the governing principle in the use of the playground or garden, to and from which the children are "free to go and come as they like." Considering that the children within these "Houses" are almost all of the pre-school age, and that they spend most of the day within the "House," this provision also, which imitates the freedom of the home life of the ordinary child during these years, seems both necessary and reasonable. Its adoption, however, as a rule by the public school would lead to serious difficulties; for many parents would reasonably object to having their children during the formative years left to associate unobserved and uncontrolled with other children.

Moral dangers from unrestricted freedom

of various ages and from various types of homes. Such freedom, however, in the case of older pupils might be still more seriously abused, resulting in the formation of undesirable habits. It must be remembered further that in our own schools the children of the Kindergarten age and of the primary grade often, are kept within the school for only short periods, and are allowed either to return to their homes at an earlier hour, or to spend the rest of the time in the play-ground, while the older children continue at their work. Considering, therefore, the shortness of the school day, our own practice seems to make adequate provision for the free out-of-door life of the young child, and at the same time avoids the dangers which would accompany the general application of this phase of the Law of Freedom.

Our practice
avoids the
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The author
condemns
the station-
ary desk
with its lack
of freedom

Within the Houses, in place of stationary desks, there are movable tables and chairs. These the author states she has adopted, in order to render the pupil freer in his movements and thus furnish the conditions necessary for free bodily development; and, secondly, to provide an additional means, through the handling of these movable furnishings, of enabling him to control his own movements. In this connection the author takes a very strong stand against the stationary desk, which she affirms to be "an instrument of slavery in the school," and a dangerous and unhygienic feature of the environment through the difficulty of cleaning the room perfectly."

But our
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From the strong language used by Dr. Montessori against the ordinary school on account of the stationary desk, one might suppose that the movable table had then been introduced for the first time. She does not appear to be aware that for Kindergarten children, who as a class are older than the pupils of the Children's Houses and whose school hours are very much shorter, the movable table is always used, and that for the pupils of the primary grade it is occasionally used also. It must, however, be admitted that it would be better if this type of school furniture were more commonly used than at present in the primary forms of our public schools. In this connection the author states that "she hopes the time will come when we shall touch with wondering hands these amazing seats." But unless the school is to become merely a place for free practical activity, and in no sense a place for reflection, the older pupil should feel that he holds a definite place and possesses definite rights as a citizen of the school community. Nothing, indeed, will do more to instil this feeling than the sense of ownership attached to the occupation of a portion of the school property, over which he exercises personal control. In this way only will he fully develop the true spirit of freedom, which involves both rights and duties. And in this way he learns while claiming his own rights to respect the rights of his fellow pupils. He learns, moreover, to carry on co-operative class work under true social conditions, where each part must act in its own sphere in conjunction with others. The tirade of the author against fixed desks has, therefore, no special importance for us except as it concerns the early period of education, and, as a matter of fact, her views on this subject have already been accepted in most other countries. At the same time, it would be well for the teacher to take additional warning from Dr. Montessori against keeping children—

especially young children—for long periods in a fixed position. Under a careful teacher the modern desk is unobjectionable for pupils beyond the elementary grades.

SCHOOL INCENTIVES

In the various school incentives in common use, such as marks, ^{Author would abolish rewards and punishments} prizes, and punishments, Dr. Montessori finds another agency by which the child is rendered dependent and is limited in his free and spontaneous activity. In holding this view, however, she merely follows the educational spirit of the nineteenth century, which opposes the old method of attempting to stimulate the activity of the child by rewards and punishments rather than by his direct interest in the exercises of the school. Here, as elsewhere, Dr. Montessori is thorough-going in her views, declaring that there is only one prize "which will not belittle or disappoint a child,"—"the birth of human power and liberty within that inner life of his." In this matter, practical pedagogy, however, has not been able to go so far as Dr. Montessori, neither has it yet been demonstrated that there is no place in education for a reasonable ^{At variance with ordinary practice} use of rewards and punishments. The real answer necessarily depends upon the answer to a psychological question: the value of indirect interest as an incentive. So far as the activities of ordinary life are concerned it must be admitted that many of our pursuits would be barren indeed without the intervention of indirect interest. It is difficult, accordingly, to conceive how every form of incentive in connection with school work can be positively injurious to the development of the child. Moreover, while not conclusive evidence, the fact that society in its early stages required the force of rewards and punishments affords corroborative proof that the child might profit in his development through the same force judiciously administered. The fact is the author, owing to her one-sided individualistic view, has failed to recognize that physical and human stimulations are not differences of kind so much as of degree. She seems to assume that a stimulation from a physical source must necessarily make for spontaneous activity, while a stimulation from a human source must necessarily be coercive. But, as we have seen, the opposition here implied is philosophically unsound, and undoubtedly a judicious incentive may often be used without interfering with the freedom of the child. Even Dr. Montessori admits as much when she ^{Modifications by the author} permits her directress to bestow praise upon the children for specific excellence. But such praise may, indeed, often prove a more dangerous form of incentive than the regular type, for it is liable to create jealousy among the pupils, who may regard it as a proof of the teacher's partiality. The truth is that it is not so much in the use as in the abuse of rewards that danger lies. The abuse consists in attempting to make them, not a mere acknowledgment of work faithfully done, but an incentive for present effort, especially when combined with competition. The judicious ^{Judicious use of rewards and punishments} use of rewards and punishments may be justly considered to serve the ^{use com mendable} same purpose as the injunctions of the teacher, which Dr. Montessori admits should be used when checking in the child whatever offends or annoys others. Each system, when judiciously carried out, finds peda-

gogical justification in the fact that it shows the child the value attach to his conduct and thus awakens in him a consciousness of is right.

THE MONTESSORI EXERCISES

The most characteristic feature of the Montessori Method is found in its didactic or educative exercises specially fitted, it is claimed, to develop the *spontaneous energies* of the child. These special exercises are made of two types,—the Exercises for the Education of the Senses and the Exercises of Practical Life. The former, to use the words of the author, have as their aim “the refinement of the differential perception of stimuli by means of repeated exercises.” We shall now proceed to an examination of the nature and pedagogical purpose of the Sense Exercises. The Exercises of Practical Life will be considered in a later section.

THE SENSE EXERCISES

Purpose of the sense exercises

Influenced, no doubt, through her belief that education should aim to give the child a mastery over his environment, Dr. Montessori lays special stress upon the educating of the senses. This education consists in stimulating some particular sense, as touch or sight, by means of varying graded stimuli, thus developing in the child the ability to perceive the differences in the stimulations. For example, a child may be blindfolded and then have his sense of touch exercised by running his finger alternately over smooth paper and sandpaper. In like manner to develop an ability to differentiate between varying stimuli in the case of colour, the pupil will begin with two samples of strong colours, as red, blue, and yellow, and attempt to arrange them in pairs according to color. Dr. Montessori declares that by these exercises the child will lay the foundations of psychic development through the refining of his perception of differences in the stimuli, and it is in the presentation of these exercises that there will be found the distinguishing features upon which the present system has founded its claim to the title of a *New Method*.

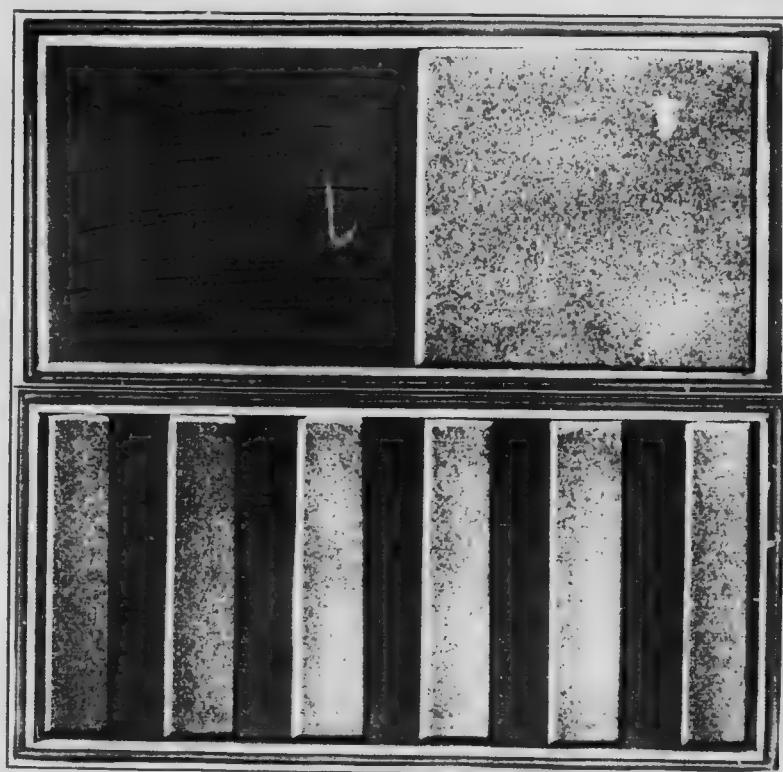
Use of didactic material largely psychological

The organization of this special didactic material as well as the large emphasis placed upon its use in educating the senses arose largely out of the experiences of the author in connection with her study of experimental psychology. In the psychological experiment definite sensory reactions are to be obtained through observations made under the controlled conditions accompanying the experiment. This being the case, it seemed possible to Dr. Montessori to organize a set of materials which might furnish graded stimulations for refining the child's perception of the different qualities presented in the material. This has resulted in the construction and patenting of special apparatus to be used in various exercises for educating the senses of touch, temperature, weight, taste, smell, sight, hearing, and the muscular sense. Other apparatus and exercises aim to co-ordinate various of the

senses as in the exercises for associating touch, sight, and the muscular sense. In these sense exercises the child is led through direct contact with material selected merely for the purpose of sense stimulation, and, therefore, unorganized from the standpoint of its general significance, to discriminate between rough and smooth, thick and thin, high and low, large and small, square and round, hot and cold, bitter, sweet, salty, etc.

For the information of the reader we add a brief description of a few of the special sense exercises and of the didactic materials used in the Children's Houses for the education of the senses. These, together with the accompanying illustrations, will serve to make intelligible any further observations and criticisms to be made thereon. For a more thorough knowledge of the sense exercises, it would be well to consult the author's own book, and, if possible to examine the didactic materials themselves.

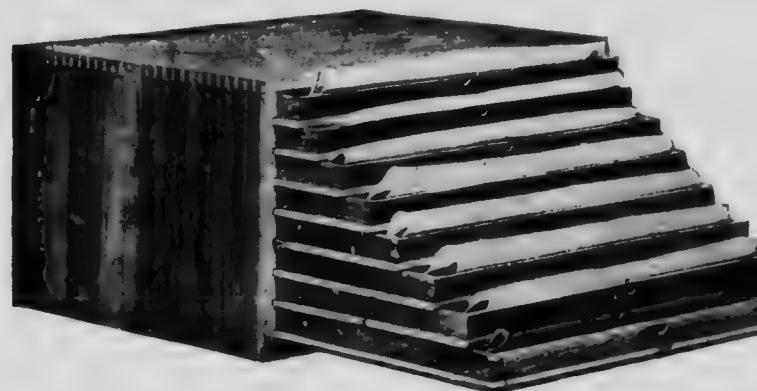
SPECIAL EXERCISES AND MATERIALS



Tablets for teaching rough and smooth

In these exercises the child is made to wash his hands with soap, Types of sense exercises: rinse them in tepid water, and dry them carefully. Next he is shown the tactile how he should touch surfaces, namely by drawing his finger very sense lightly over the surface. The materials used in furnishing the graded stimuli consist of a wooden board having one part covered with smooth

paper and the other with sandpaper, and a second board covered nately with strips of smooth paper and of sandpaper. In addit

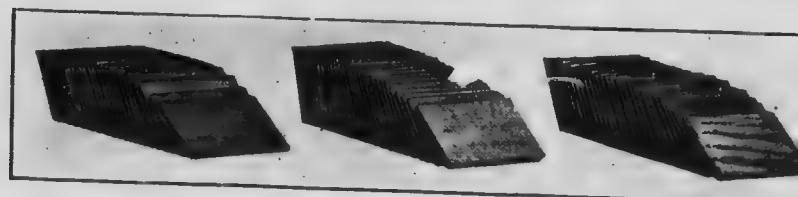


Cloth boxes containing samples

the above tablets the children are supplied with a number of slips paper which vary from cardboard of the smoothest quality to a coarse sandpaper, and with samples of velvet, wool, silk, fine coarse cotton, and fine and coarse linen.

The thermic sense

In educating the thermic or temperature sense, there is used set of utensils of light metal, which are filled with water. Each these has a thermometer attached to it, and is provided with a cover to retain the heat. To obtain the necessary stimuli the child touches the outside of the utensils. Another exercise consists in having child put his hand consecutively into vessels filled with cold, tepid, and warm water, and thus learn to perceive differences in the graded stimuli.



Baric sense tablets

The baric sense

In educating the baric sense or sense of weight, little wood tablets are used made from different kinds of wood and thus differing weight and colour. The child tests the weight of these in his hand having at first different colours to guide him. Later he must distinguish the tablets purely by weight.

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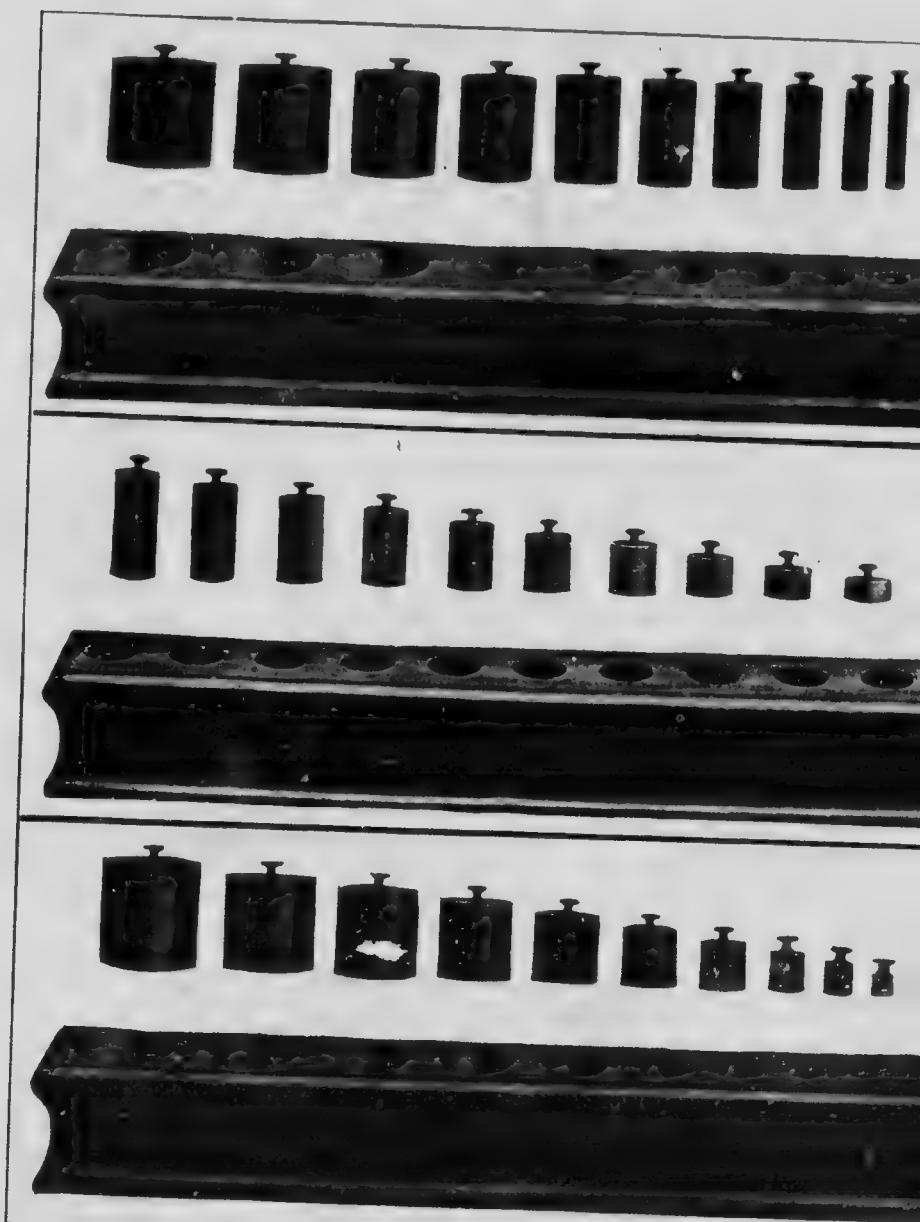


Telling objects by weight



Training the sense of touch

For the simultaneous development of the tactile and muscular The tactile and muscular senses senses, use is made of the bricks and cubes of Froebel's Gifts. The child is first to notice the differences of form with his eye, at the same time feeling the two forms carefully. He must next separate the cubes from the bricks by feeling only. As a final test he must be able to do this when blindfolded.

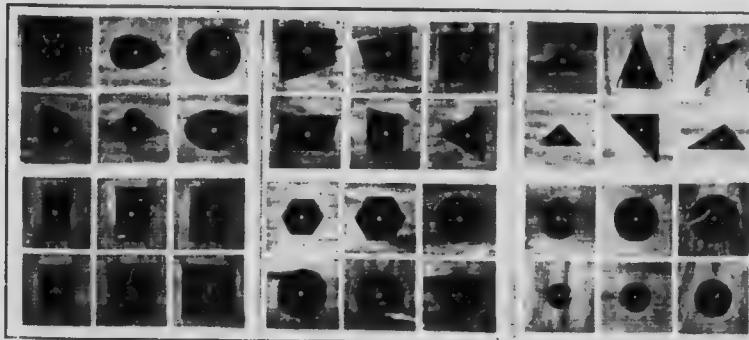


Solid geometric insets

To develop in the child the ability to distinguish visually differences of dimension, there are provided solid geometric insets. These consist of three blocks of wood, each containing ten holes into which are fitted cylindrical pieces of wood. One of these contains cylindrical pieces equal in height but differing in diameter. In the second the cylinders are equal in diameter but of different height; while in the third they differ both in height and in diameter. By the exercise involved in putting each piece into its proper place, the child is supposed to educate himself to detect visually differences in thickness, height, and size. The sense of vision

Another exercise used to give the perception of differences in length consists in having the child arrange symmetrically ten rods of different length, which lie scattered before him. In describing this material the author writes:

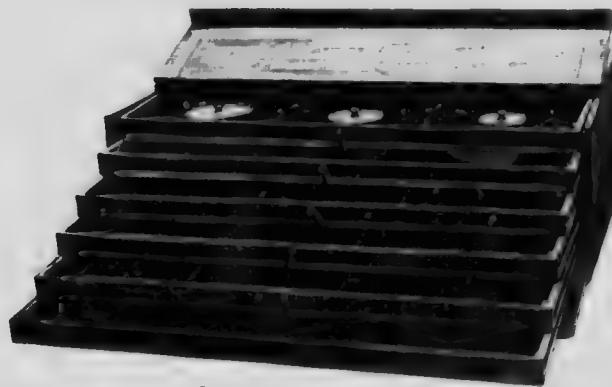
"Length: Long and Short Objects:—This set consists of ten rods. These are foursided, each face being 3 centimetres. The first rod is a metre long, and the last a decimetre. The intervening rods decrease, from first to last, 1 decimetre each. Each space of 1 decimetre is painted alternately red or blue. The rods, when placed close to each other, must be so arranged that the colours correspond, forming so many transverse stripes—the whole set when arranged has the appearance of a regular triangle made up of organ pipes, which decrease on the side of the hypotenuse."



Plain geometric insets used to teach form

In co-ordinating the visual, tactile, and muscular sense use is made of geometric insets of various forms, which are to be set in their proper places in frames, or placed upon corresponding forms mounted on paper. At first the insets are scattered upon a table and the child is expected to put them into their proper places in the frame. Later the child is presented with the corresponding cards. These he must arrange upon the table and then place each geometric inset upon its corresponding card. These cards are presented to the child, first with the figures mounted in blue paper on white cards, secondly with the figures repeated by an outline of blue paper, and thirdly with the figures drawn in black. To enable him to recognize the forms, the child is led to touch the outlines with the index finger of his right hand, thus co-ordinating the muscular and tactile senses with the sense of vision. The visual, tactile, and muscular senses

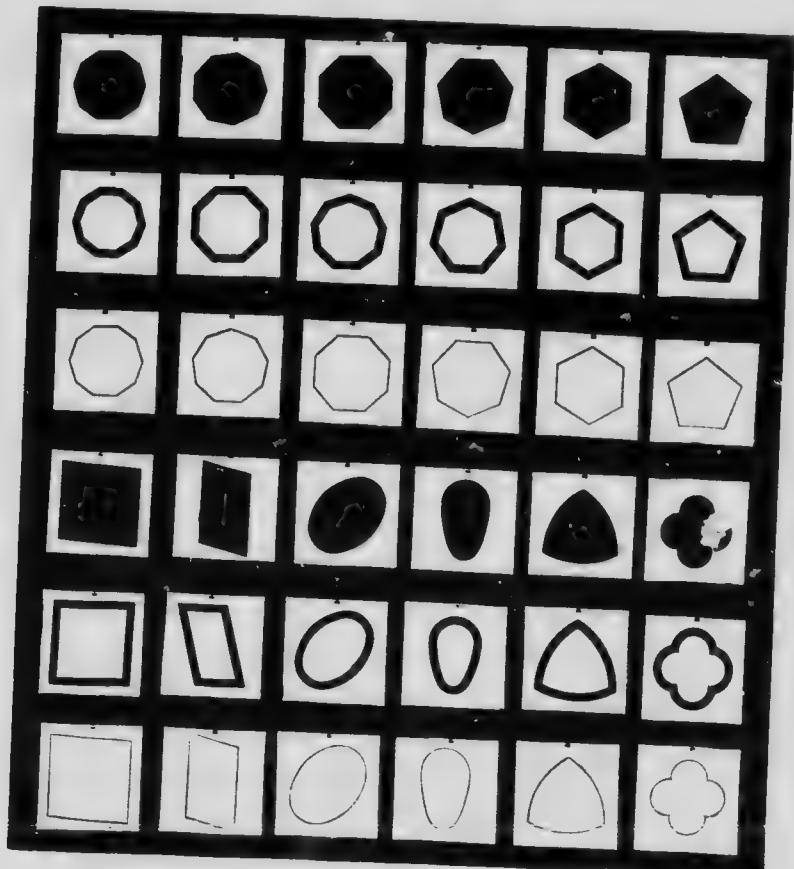
In describing the didactic materials of these exercises, the author writes as follows:



Cabinet for storing insets

"I designed a case containing six trays. The front of this box may be lowered when the top is raised and the trays may be drawn out as one opens the drawers of a desk. Each drawer contains six of the small frames with their respective insets. In the first drawer I keep the four plain wooden

squares and two frames, one containing a rhomboid, and the other a trapezoid. In the second, I have a series consisting of a square, and five rectangles of the same length, but varying in width. The third drawer contains six circles which diminish in diameter. In the fourth are six triangles, in the fifth, five polygons from a pentagon to a decagon. The sixth drawer contains six curved figures (an ellipse, an oval, etc., and a flower-like figure formed by four crossed arcs)."



Card forms

"To this material I have added a set of white cards, 10 centimetres square. These cards form a series presenting the geometric forms in other aspects. In the first of the series the form is cut from blue paper and mounted upon the card. In the second box of cards the contour of the same figures is mounted in the same blue paper, forming an outline one centimetre in width. On the third set of cards the contour of the geometric form is outlined by a black line. We have then the tray, the collection of small frames with their corresponding insets, and the set of the cards in three series."



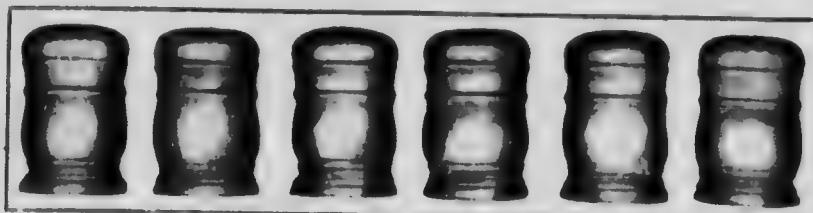
Arranging colours in their chromatic order

For educating the chromatic sense, there are provided tablet The visual perception of colours wound with different coloured silk. Of these there are sixty-four in all, comprising eight tints with eight gradations of different intensity. Two sets of these must be used, or one hundred and twenty-eight tablets. By this means the child may be given exercises of varying complexity in matching the different colours. In speaking of these exercises the author says:

"The number of tablets in this game may be increased until the eight colours, or sixteen tablets, are given at once. When the strongest tones have been presented, we may proceed to the presentation of lighter tones, in the same way. Finally, we present two or three tablets of the same colour, but of different tone, showing the child how to arrange these in order of gradation. In this way, the eight gradations are finally present."



Tablets wound with coloured silk



Cylindrical sound boxes

In speaking of the exercises for the discrimination of sound the ^{These are of} author writes as follows:

"For the discrimination of sounds, we use Pizzoli's series of little whistles. For the gradation of noises, we use small boxes filled with different substances, more or less fine (sand or pebbles). The noises are produced by shaking the boxes."

By means of these stimuli the children are led to detect different degrees of sound, and are to arrange the cylinders according to the sound produced.

In speaking of tests for the acuteness of hearing, the author writes:

"The only entirely successful experiments which we have made so far in the 'Children's Houses' are those of the clock, and of the lowered or whispered voice. The trial is purely empirical, and does not lend itself to the measuring of the sensation, but it is, however, most useful in that it helps us to an approximate knowledge of the child's auditory acuteness."

"The exercise consists in calling attention, when perfect silence has been established, to the ticking of the clock, and to all the little noises not commonly audible to the ear. Finally we call the little ones, one by one from an adjoining room, pronouncing each name in a low voice."

THE METHOD OF SELF-EDUCATION

In formulating a method for conducting these sense exercises, Dr. Montessori proceeds from her conception of the end of all education, which is the development of latent energies within the child in order to make him free and independent. Reasoning from the biological conception of life which underlies her system, she concludes that although the child is entering society, he really belongs to nature (being a natural child "yoked to society") and, as a biological individual, he must develop his individuality largely through *direct* contact with concrete objects. From this it follows that the object must, as far as possible, furnish the instruction for the child without interference on the part of the teacher. The aim of the Montessori exercise is, therefore, the development of individual energies through the calling forth of the spontaneous activity of the child by means of objects which in themselves exercise an educative function, and thus lead to *auto-education*, and when possible to *self-correction*. The correction of errors is not, however, considered important in the earlier exercises at least; what is aimed at is not the teaching of the meaning of objects but merely the calling forth of *spontaneous activity* by means of objects and the development of *psychic* energies.

Author claims that the child develops through auto-education

Example of auto-education

As a typical example of such a self-educating exercise we note especially the exercise with geometric insets. The material for these exercises consists of a block of wood with holes of various sizes, into which geometric forms are set. The exercise consists in removing these forms and then having the child replace them each into its proper hole. Here clearly enough, the exercise occupies the attention and educates the eye to distinguish form, while the materials will in themselves conduct the exercise and lead the child to discover his errors.

Method based on study of defectives and experimental psychology

The emphasis placed by Dr. Montessori on the educative value of a direct use of concrete materials without intervention on the part of a teacher results partly from her experience in connection with the education of defectives, and partly from her knowledge of experimental psychology. Finding by experience that the intelligent life of defectives could be awakened and developed by a judicious use of selected concrete materials under the direction of a teacher, she conceived the possibility of arranging exercises of the same kind which in the case of normal children would provide for auto-education. Finding further from her knowledge of experimental psychology, that concrete materials may be used in a definite way to produce certain mental reactions on the part of the subject, she concluded that pedagogical experiments could be arranged with educative materials which, by causing the child's mind to react, would themselves develop his energies spontaneously and thus produce auto-education.

Principles underlying method of auto-education

By some, indeed, it is held that the method of auto-education is the chief and underlying principle of the Montessori Method, and that all its other educational practice proceeds therefrom. This, however, is really a confounding of practice with principle; for in reality, the use of auto-education is explained by two theories that underlie the author's conception of life. These are:

First, a recognition of the child as a biologically distinct individual endowed with a biological tendency or with mysterious powers, which have within themselves the origins of their own development; and—

Secondly, the opposition of an environment external to the individual, to the free and independent manifestation of this inner power.

The development of this inner power is conditioned upon the overthrow of the external obstacles through the direct manifestation of individual energies. The method, therefore, must consist in bringing the individual powers into direct relation with the environing obstacles, and education must provide for the spontaneous exercise of the powers of the individual in the direct mastery of the opposing environment, and as such it may be termed *auto-education*.

Author's reasoning partly fallacious

In the light, however, of the preceding context, it is evident that in each of the above conditions there is at least a partial fallacy. It has been shown that intelligent man must be viewed, not as a mere separate individual, but as an individual member of society. It has been shown further that the apparent opposition between the child and his environment is not a real one, since the environment is fraught with social meaning, and this necessarily implies a moral relation between the individual and his surroundings. Hence arises an important question whether auto-education may be accepted as applicable to all of our educational practice.

From our knowledge of the social nature of the individual, it is evident that the presentation to the child of his mere concrete environment will in no wise reveal to him the whole of his surroundings. Moreover, in his contact with what seems purely physical things, the relations are at least as much social and moral as physical; and thus the work of education becomes not solely or even mainly a sensuous and intellectual interpretation of the environment but a social and moral one. To use the words of Herbart, "the end of education is the moral interpretation of the world," and the work of education consists in "Instruction," in which the teacher must act as a mediator between the child and his moral environment. It is accordingly manifest that whatever selected didactic materials may enable the child to do in his study of the mere physical properties of things, through auto-education, they can never reveal to him in their full significance the moral and spiritual features of his whole environment.

In formulating a general method for conducting such an exercise in auto-education, the first characteristic to be kept in view, according to Dr. Montessori, is that of *individuality*. If the child is to be awakened into spontaneous activity through direct contact with the materials forming the exercises, nothing can be permitted to divert his attention, for the reaction upon them must be spontaneous and individualistic. The co-operative work of class instruction would necessarily interfere with the free spontaneous attention which the child must give to the materials of the exercise. In this connection, Dr. Montessori remarks:

"In a collective lesson much importance is necessarily given to the simple thing which is to be taught, and it is necessary to oblige all the children to follow the teacher's explanation, when perhaps not all of them are disposed to give their attention."

"The collective lesson will always be very rare, since the children being free are not obliged to remain quiet in their places and ready to listen to the teacher. The collective lessons, in fact, are of secondary importance and have been almost abolished by us."

This aspect of the exercise is, of course, in harmony with the strong individualistic conception underlying the author's theory of life. Evidently, also, the Montessori exercise does not, like the occupations of Froebel, aim to form social habits directly, but rather to lead to the attainment of individual efficiency.

So far as concerns very young children, it may be said that the individual character of these exercises is in conformity with the stage of such children's social development as evidenced in the fact that they would rather play with an object than join in a game. And here, no doubt, a fair amount of individual work by the pupils of the Kindergarten and the primary grade is desirable. On the other hand it must be admitted that being by nature social, the ordinary child of five years of age should then begin to acquire a social attitude in his bearing toward his fellows. Within the Children's House, this may, no doubt, be secured in part through the Exercises of Practical Life, but for reasons already stated it is at least questionable whether in the ordinary school very many of the exercises should be especially individualistic.

(2) Simplicity

Another characteristic of the exercise is its simplicity. In adapting the materials to their pedagogical function, care is taken that one simple result is to be obtained at a time. This single purpose, however, must not be confused by verbal descriptions or by the addition of detail on the part of the teacher. Instead of placing before the pupil an object which may exercise all his senses and tend to the acquisition of a body of information, as is done, for example, in our normal lessons and other informative topics, the Montessori exercise is limited to accompanying a single sense, eliminating the information that would accompany the presentation of more general materials. The attention of the sense of sight may, for example, be occupied merely with the pairing of two colours; or in the study of a geometric form such as a square, simply with the form as a single whole, without any reference to the sides or the angles.

The chief reasons given for the simplicity of the exercises are based on the principle of liberty and the psychic law of attention; for the aim of education being the development of the child's energies, care must be taken not to weary him or distract his attention with difficult and complex exercises. For this reason the child has "in the first lesson" his attention fixed, through isolation, upon single stimuli; and for the same reason it is said of the teacher that when giving a lesson she "must seek to limit the child's consciousness to the *object* of the lesson." The simplicity of these exercises is also, no doubt, due to the fact that they have developed in part from exercises used in the education of defectives. Whatever other value the exercises may have, the simplicity of the Montessori method deserves close consideration by all teachers, many of whom often fail through the presentation of problems whose elements are too complex.

But school exercises
not necessarily simple

On the other hand the very simplicity of many of these exercises might cause a child of vigorous and healthy mentality to despise pre-analysed and pre-digested material. In some respects, indeed, they resemble the efforts of many a modern teacher who through an over-emphasis upon the inductive and developmental methods prepares a smooth and easy channel along which the mental activity of her pupils is to glide. Every experienced teacher knows, of course, that the child soon tires of these easy glides. Moreover, it is a generally recognized principle, that to make adequate provision for the development of will power, education must provide *problems* of reasonable difficulty. And further, it should be borne in mind that spontaneous attention really implies some direct interest on the part of the child in the presented material. It may well be asked, therefore, whether the formal and lifeless material of these exercises, notwithstanding their simplicity, will hold the child's attention as well as even more complex materials taken from his natural and living environment.

(3) Objectivity

A third feature of these exercises is their objectivity; that is, the success of the lesson depends upon the child's active interest in the object and not on any information conveyed through the teacher. The teacher loses her status as a teacher in the presence of these objects and merely observes the child, being very careful "not to offend the principle of liberty." In this connection, the author especially warns

the teacher that her personality is not to be impressed upon the child's mind in place of the object for which the lesson is given. Her views are stated in the following quotations:

"Not upon the ability of the teacher does such education rest, but upon the didactic system. This system presents objects, which first attract the spontaneous attention of the child, and secondly, contain a rational gradation of stimuli."

"It is necessary, therefore, that the teaching should be rigorously guided by the principle of limiting to the greatest possible point the active intervention of the educator."

"When the child educates himself, and when the control and correction of errors is yielded to the didactic material, there remains for the teacher nothing but to observe."

"For this (the old-time) teacher, we have substituted the didactic material, which contains within itself the control of errors and which makes auto-education possible to each child."

As noted above, however, this aspect of the exercises could be followed in the educative process only so long as the process confines itself to the purely physical aspect of the relation of the subject and the material. To make the problem of education a moral one we cannot But a large use of concrete material objectionable restrict it to the purely physical character emphasized in these exercises. And, indeed, when later we consider the Exercises of Practical Life, we shall find within the Children's House a very marked departure from the principle of objectivity.

VALUE OF SENSE EXERCISES

Proceeding to a consideration of the pedagogical value of these exercises, we must ask first whether the extreme emphasis placed by Dr. Montessori on the formal education of the senses as a necessary basis for the development of the intellectual life is philosophically sound. Dr. Montessori herself states that this increased "refinement of the sense perceptions gives the dog the pleasure and the passion of the chase." She does not, however, go on to show us that from this refinement of the senses the dog will perhaps excel man in *psychic* power or in the achievements of the intellectual life. Moreover, it is a well known fact, that while some of the senses of the ape are superior to those of man it does not possess the *psychic* power which is assumed to follow as a necessary result from the formal training of the senses. On the other hand many human beings deficient in two or even three of their senses have been known to excel in intellectual attainments. Nor is it by any means a rule that men whose senses are most highly developed are also superior in intelligence. Acuteness of sensation is accordingly not an essential condition of *psychic* or intellectual power.

Another aspect of the author's conception of the pedagogical importance of these exercises is presented in the claim that they provide for the spontaneous *psychic* development of the child in accordance with its own *potentialities*. The aim of the exercises, therefore, must be the development of the energies of the child and not the acquisition of knowledge. To use the words of the author, "All education of little children must be governed by this principle—to help the natural *psychic* and physical development of the child. The other aim

Author claims that sense exercises provide mental training, not knowledge

of education, that of adapting the child to the environment, should be given more attention later on." The purpose of these exercises, therefore, seems to be the development of potential *psychic* energies which may afterwards be turned to account by the child in observing and thus acquiring a knowledge of his environment. In discussing this conception of the aim of elementary education the author states her views in the following propositions:

"After we have offered the child such didactic materials as are adapted to provoke the development of the senses, we must wait until the activity known as observation begins."

"Our educational aim with very young children must be to aid the development of the mental, spiritual, and physical personality, and not to make of the child a cultured individual."

"These are true intellectual gymnastics. Such gymnastics aid in the formation of the intellect."

"Their object is not that the child shall know colours, forms, and the different qualities of objects, but that he shall refine his senses."

"It is generally believed in schools that the way to attain satisfaction is to learn something. But by leaving the children in our schools at liberty we have been able with great clearness to follow them in their natural method of spontaneous self-development."

All this, however, necessarily implies that these exercises develop some elemental energy which later may be turned to the acquisition of knowledge.

Author's
claim to
having
founded a
new system

If, as is claimed by Dr. Montessori, the true aim of elementary education is to develop the natural *psychic* power of the child, or to aid in the formation of his intellect by means of true intellectual gymnastics, and not to furnish him with elements of knowledge, she may justly claim to have founded a new system of education, or, perhaps better, to have revived an old one. For if it be a fact that she has established on a sure basis the conception of education as a training or discipline of the *psychic* powers of the individual quite independently of a consideration of the elements of knowledge, then the social aspect of the materials of knowledge may be safely ignored at least in early education, and it will be readily understood why the materials of the exercises are so often of a formal or arbitrary type, being used merely to develop some energy of the pupil, not to lead him to interpret his surroundings.

But mental
training
always
includes
knowledge

At this point, it will be well to ask whether the distinction between the development of the individual's *psychic power* and the acquisition of knowledge by the individual can be scientifically maintained. Now a true conception of the development of the child's *psychic* being or personality necessarily means the acquisition of control. But mental control always implies the acquisition of knowledge; for it implies attention, and the process of attention is always a process of knowledge. Knowledge, therefore, must constitute the instrument through which the *psychic* problems of the individual are to be solved. Moreover, it is an accepted psychological fact in the science of education that there exists no such thing as a general *psychic* ability which may be applied to all types of material, but that every so-called *psychic* power or ability really implies ability to apply knowledge. Such being the case, the opposition between the development of in-

dividual energy and the acquisition of knowledge which is assumed in the system cannot really exist, and every form of psychic development must imply the acquisition of usable knowledge. While, therefore, Dr. Montessori rightly emphasizes through her work the fact that knowledge should proceed from the spontaneous activity of the child, she fails to recognize the collateral fact, that in education, knowledge cannot be divorced from *psychic* activity.

It is further evident that a system of education based on the assumption of the possibility of developing psychic power distinct from acquisition of social knowledge inevitably leads to an excessive use of formal and arbitrary concrete material for the development of these individual energies, and to a corresponding neglect of social and informational elements. This, moreover, will fail to give the imagination of the child due scope, for even the young child desires to live in an ideal world; and the too continuous use of this formal concrete material will so control his experiences that his reactions will not allow him to grow freely apart from the expressed purpose of the didactic materials. A system of education, based so largely on concrete didactic materials might, it is true, develop, as the author claims, a race of observers, but it is unsuited to develop a race of imaginative and conceptual thinkers. Moreover, it is not true, as Dr. Montessori claims, that mere observation "accomplishes the general work of adaptation." It has not been by the development of mere observation as found in primitive races that social advance has been made through invention and discovery, but rather by the imaginative and reflective intellect of the conceptual thinker; for scientific observation is in the last analysis, of the intellect and not merely of the senses. Although the observant native of the wood could most keenly detect the motor force of the wind, the river current, and the lightning flash, it was not he who was able to read into them the possibility of work and their consequent adaptation to social service. Accordingly, no universal system of education can afford to lay its foundations upon a method which emphasizes a sensuous contact with concrete material as the *sole* or even the chief source of intelligent adjustment.

In another respect also the theory of Dr. Montessori in relation to the education of the senses presents a philosophic weakness. Speaking of the results of this training she says:

"The directress must intervene to lead the child from sensations to ideas; from the concrete to the abstract, and to the association of ideas."

In this contrast of sensations with ideas and with the association of ideas, Dr. Montessori makes a false assumption as to the nature of knowledge. When she speaks of leading the child "from sensations to ideas," she seems to imply that sensation exists as mere sensation apart from ideas,—the child receiving the elements of experience in the form of individual sensations, which may later be associated to form ideas or knowledge. If by this she really means that in these exercises the child is forming his ideas through the association of received individual sensations she must explain the origin of knowledge by the false theories

of the "Association or Mental Chemistry" Schools. It may, however, be unjust to charge her with expecting the generation of ideas out of mere individual sensations; for in speaking of sensations in another place she especially describes them as discriminations of difference in the graded stimuli. But such sensation is really a recognized quality of a perceived object. Viewed in this light these so-called elements of knowledge which pupils obtain in the exercises are in reality qualities abstracted from the larger experience of a perceived object. Instead, therefore, of being sensuous elements of knowledge they are really abstract and general forms of thought; for it is the nature of all ideas of quality to be general. The question, therefore, at once arises whether these abstract and general ideas are to be presented to young children, and if so, whether such presentation can best be made through formal and meaningless materials.

Knowledge gained through sense exercises, not related to whole life surroundings

This formal character of the stimulating materials of the system brings us to another fundamental question. It has from the days of Realism been an accepted principle of elementary education that, in order to touch the interests and feelings of the young child, and thus gain his spontaneous attention, the materials of study should come from realities within his actual life. In the scientific organization of most systems of education, also, it has been customary to assume that the child will adjust himself to the immediate needs of his social and physical environment, first and chiefly through the informal education of the home, and that the real work of scientific education consists in readjusting and symbolizing these acquired experiences in order to add to his individual and social efficiency. One of the chief processes involved in the home education of the pre-school period, is direct stimulation through the physical environment. In this process the child within the home makes demands upon the things about him, and, in the meeting of these demands, he secures a control over his own physical environment, and thus obtains in part the experiences necessary as a basis for school instruction. Moreover, an examination of the nature of this early contact of the child with his objective world will show that the process is one of feeling rather than one of reflection. It is distinctly an objective stage of experience in which the child feels himself expand to take in a world of significant objects before the qualities of the objects can be adequately discriminated and reflected upon. In this direct contact with the home environment, however, the character of the object and of the action upon the child is necessarily of an informal and accidental character. One of the unique features of the Montessori Method, therefore, consists in its attempt to organize for the use of the young children of the pre-school period within the Children's Houses, special pedagogical exercises through which this direct stimula-

* According to the various "Association Schools," the primary elements of our knowledge are individual sensations, the idea of an object being the result of a composition or association of individual sensations. For example, our knowledge of the object orange comes from an association of certain sensations of colour, taste, smell, etc. The true theory, of course, is that a child first vaguely apprehends such an object as a complete or unbroken whole, and later by a process of analysis gives attention to its separate qualities.

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tion of the physical environment is to be carried on in a simpler, more direct and, it is claimed, a more scientific way than is likely to take place in the informal and accidental process going on within the home.

At this point, however, an objection arises to the adoption of these didactic exercises as a formal means of obtaining such education. When in the home the child is brought in contact with his physical surroundings he receives the stimuli under perfectly natural conditions; that is, under conditions involving only this primary emotional and objective apprehension of the surroundings and their normal social functions. These conditions, moreover, make possible the working of the principle of social interpretation mentioned above. In the case of the materials of the Montessori exercises on the other hand, the child receives stimuli from arbitrarily prepared objects. This abstracts from the presentation not only all social significance but also the distinctive objective and feeling stage of experience in which the child should first grasp his surroundings, and substitutes analysed qualities whose apprehension belongs to a second and higher stage of experience; and, although this lack of social significance may make it possible to eliminate more completely the teacher as an instructor, the objects are much less likely to appeal to the interests of the child. This is especially noticeable in connection, for example, with that portion of the exercises intended to give the child a knowledge of geometric forms. These forms not being made to rest upon any organic basis in the child's actual experience, through rearrangement or combination, they are necessarily lacking interest and social meaning. But, as will be seen later, when the child meets such forms in the Kindergarten or primary grade, they at once return into his whole life experiences through their combinations into designs of life and beauty, and through their recognition in various natural and artistic forms within his whole life surroundings. Although, therefore, such occupations are less simplified, they clearly furnish more suitable and more interesting stimuli for the child's early objective apprehension of his surroundings than do the sense exercises. The fundamental weakness of these exercises is, therefore, that they suppose the child to be benefited through an analytic presentation of the stimuli of a mere physical world, from which all social significance and all whole life reference has been eliminated.

The over-emphasis placed in the system upon the importance of mere sense stimulation results, no doubt, in part from the author's individualistic conception of life, and her belief that the individual life is developed by overcoming an opposing environment. If the child could be considered a mere individual possessing neither social tendencies within nor a socialized environment without, "merely endowed with a physical and physiological organism which brings him into relation with an opposing outer world, we might come to the conclusion that he could generate all his knowledge directly out of an association of individual sensations. But it has been seen that while it is true that the individual develops through contact with a purely physical environment, it is in no sense true that this in itself furnishes an adequate basis for the development of his intellectual life. The real cause of the development of the intellectual and spiritual life of the individual

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is his conquest of an environment which is laden with a moral and spiritual meaning, and which is the inheritance from the past experiences of the race. Man's true relation to his physical environment therefore, no mere question of physical adjustment, but rather an intellectual and spiritual one, in which the social tendencies of the individual find their satisfaction in interpreting his physical environment as an embodiment of social ideas and ideals.

These exercises neglect important elements of experience

The limited and formal character of these sense exercises now becomes evident from another standpoint; for not all of our experiences can be reduced to such *sensational elements*. By what arrangement of didactic materials are we to furnish our children with the graded stimuli that shall later by force of mechanical association give them the ideas of truthfulness, patriotism, or self-sacrifice. Hence even were it possible for this "Mental Chemistry" to produce mechanical associations of sensuous elements, it would by no means imply, as we shall see later, that the highest aim of education is found in sensation rather than in imagination and reflection. It is for this reason that serious educational loss would follow the elimination from elementary education of games and stories as is largely done in this method.

Important phase of the learning process overlooked

It is evident, moreover, that the treatment of knowledge as a mere *synthesis* of elements received by the child from an outer world is fundamentally wrong. These so-called elements have been shown to be in reality differences of quality which are perceived by an act of analysis. But in such an analytic process, the child must distinguish between different qualities of an object first apprehended as a living whole. This implies, however, that the normal growth of knowledge is to be an analytic-synthetic process in which parts and qualities are distinguished in relation to interesting objects and activities which exist as living wholes within the natural surroundings and actual experiences of the child. The over-emphasis of the synthetic process by the Montessori Method will be commented upon further in connection with the exercises leading to the acquisition of the art of writing.

Message of the Method

Without, therefore, denying the importance of an adequate education of the higher senses, we maintain that to attempt to establish a system of education largely on the basis of the development of sense discrimination through easy experiments carried on by means of arbitrary materials would be pedagogically unsound. As we shall show later, an adequate development of sense discrimination can best be secured, not by the mere repetition of individual stimuli from the arbitrary, and often meaningless materials of the didactic exercises, but by judicious and adequately controlled observations on the part of the child, of objects and activities within his own interests and natural environment. If, therefore, the Method has any message for our teachers, it must be toward the development of the scientific spirit and aptitude necessary to the formulating of principles and methods for such controlled observations, not in the presentation to our teachers of the abstract, formal, and, to the child, meaningless and uninteresting materials of these didactic exercises.

Many educators will also object no doubt to the attempts made in these exercises to develop the senses of smell and taste. These senses have to do with the lower sensuous rather than with the higher intellectual life. Their development will imply in the words of Plato "a development of the appetite rather than a development of reason."

DEVELOPMENT OF THE WILL

The author further claims for her method that it leads to ^{will supposed to be developed through sense exercises} the development of an adequate will-power. This she finds partly in the fact that the exercises admit of freedom and spontaneity on the part of the pupils. Mere freedom and spontaneity, however, will not necessarily develop a strong will. The native Indian certainly led a life of freedom and spontaneity; but, although this life developed mere animal independence, it did not provide him with the will-power to evolve for himself an adequate physical, not to speak of a social and spiritual environment.

And further, Dr. Montessori seems to think that the repetition of the simple processes of the various exercises will also provide the children ^{and motor control} with a control that must be accepted as a development of will-power. Under this head she says: "The Method which is the subject of this book contains in every part an exercise for the will-power, when the child completes co-ordinated actions directed toward a given end." But the mere repetition of didactic exercises, even under the most perfect conditions of auto-education, will never result in an adequate development of the will, even though they may perfect certain co-ordinations within the nervous system. Such control can be gained, not through mere repetition of exercises, but in the setting up of consciously conceived new problems calling for the intellectual application of previously acquired knowledge. It is, therefore, in the conscious working of the new problem, or in the use of the old problem in a new connection, that there will be found real development of the will-power. The so-called problem of these sense exercises is too often a mere result of the graded stimuli, and cannot be accepted as the equivalent of an intelligent, pre-conceived problem. Here, again, then, the ordinary exercises of the despised "common school" will be found superior to the pre-arranged didactic exercise.

Moreover, it does not seem likely that the expected neural co-ordinations will always be formed within the nervous system through the sense stimulations involved in many of these exercises. It is an accepted law of physiological psychology that unless such thought processes as imagination, judgment, etc., accompany sensory and motor stimulation, no adequate co-ordinations are formed within the brain. If, therefore, the sense impressions involved in the exercise do not give reasonable opportunity for thought and expression in the form of varied problems, no such associations of nerve fibres will take place, and no adequate mental control of our actions will be attained. It is for this reason that the Montessori sense exercise does not form so good a basis for industrial training as do the occupations and constructive exercises of our own Kindergarten and primary grades, since such con- ^{But essential mental element lacking in these exercises} ^{Relations of sense exercises to industrial training}

structive processes afford much more opportunity for thought and imagination than accompanies the use of the fixed materials of the school exercises. This point will, however, be considered more fully when we compare these exercises with the various occupations of our own Kindergarten and primary grades.

MONTESORI AND FROEBEL

The system
as a media-
tor between
home and
school

First stage
of experi-
ence, emo-
tional and
objective

Second
stage, intel-
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Granting for the present the desirability of leaving the education of the child to the home during the first five years of his life, we may now consider, in comparison with the occupations and other exercises of the Kindergarten and the primary grades, the value of the Montessori didactic materials as a mediator between the home life of the child and the more definite processes of formal education. The child at the age of five who, within the home, has experienced to any degree the regular forms of stimulation and response, is especially attracted to activities and objects which enter into its life as organic wholes, but which at the same time present diversity in their elements. In other words he seeks presentations of whole life, or unity in diversity; for these presentations will afford him ample play for imagination, imitation, and suggestion. Fragments of experience on the other hand, when divorced from their natural whole life-setting, are lacking in native interest. It is not, for example, the mere colour or the mere form of an object that interests the young child, but form and colour combined into the unity of a significant object, and conceived as a *single* unity. In elementary education, therefore, objects and activities should be first presented in a large measure as organic wholes.

Sooner or later, however, the child must enter upon an intelligent reconstruction of these whole experiences, and a mastery of the symbols necessary to this reconstruction. In this reconstruction, moreover, he must proceed through a process of analysis which shall make him conscious of the diversity of relations now but vaguely realized in the organic unity of the objects and activities upon which his present interests are centred. Here the learner is to proceed to an intelligent elaboration of the parts and attributes constituting the now vaguely apprehended wholes which compose his objective environment. An intelligent mastery of these analysed elements, however, necessarily implies that they must be apprehended from the point of view of a unifying aim. In other words these elements of knowledge possess significance only when distinguished from the point of view of the child's earlier whole life experiences. It is this fact which makes the normal process of instruction an analytic-synthetic process, in which knowledge proceeds by analysis from a vaguely apprehended unanalyzed whole to a discovery of the connected parts or attributes, and thence to a clearer synthetic apprehension of the whole. To attempt on the other hand to give directly to the child simple elements of knowledge is, as we have seen, to attempt to teach unrelated general facts. But such unrelated facts have no meaning and are, therefore, almost certain to remain valueless in the mental life and lacking practical application; for the perception of unrelated elements of knowl-

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ledge, independent of any constructive activity of thought, will not give control over these perceived elements, nor will they, as Dr. Montessori seems to think, *spontaneously* combine at a later stage into the unifying and coherent character of true knowledge.

It is, accordingly, evident that many of the Montessori exercises, with their arbitrary materials and simplified but generalized elements of knowledge, do not give the child the whole life presentations which are necessary to his present interests and imagination, and which may also provide unifying aims for further study of the simpler elements of knowledge. In many of these exercises, as we have seen, the child is expected to fix his attention in a blind and arbitrary manner upon pre-analysed elements, quite independently of the social significance of any larger unifying whole, and thus reverse the normal process of learning as indicated by his own interests and by the experience of educators; for most of the exercises aim to give the child a direct mastery of the simple but general elements of knowledge through specially analysed stimuli, and aim, therefore, to present mere attributes as units quite independently of any intelligent unifying object.

We thus find the Montessori Method to be weak in that it expects to place a study of simple attributes before this whole life interest in objects and activities. The sense exercises, as we have seen, are intended to educate by means of isolated stimuli a single sense, so that the child may be able to detect differences in the stimuli. In educating the colour sense, for example, the materials were seen to consist of tablets wound with coloured wool or silk. By means of these materials the pupils gradually learn to distinguish colours, first two by two and then gradually by the introduction of gradations of the two colours. In the same manner, the exercises for discriminating sound stimuli direct the attention of children to sound discriminations by such elemental sounds as, *St! St!* uttered in a series of modulations and to noises produced by shaking boxes filled with different sized pebbles. In such discriminations it does not seem likely that the distinguished individual characteristics can return into a mentally reconstructive whole which has been made more intelligible by this analysis, as is the case when these qualities are perceived in relation to significant objects. But without the establishment of such significant relations these perceived elements of experience cannot interest the child; for it is only through the suggestive power which such an element of knowledge possesses that it will touch his interests. Moreover, its tendency to suggest further use for the knowledge gained necessarily depends upon the relations under which it has been apprehended.

In the exercises of the Kindergarten and the primary grade, on the other hand, the occupations and the natural materials aim to touch the whole life of the child, and seem, therefore, suited to his interests and his attentive processes. During the exercises also, the aim is to give each part meaning and connectedness through a perceptual discovery of its relations, thus unifying it at once with the larger whole of practical life and adding to its educational possibilities. Whereas, therefore, the Montessori exercise in educating the colour sense uses meaningless tablets covered with coloured wool or silk, by which the pupils

method of the exercises therefore imperfect

Lacks whole life presentations

And pre- sents sim- ple attri- butes first

Basis of the Kindergarten exercise, whole life

gradually learn to distinguish colours as a mere sense discrimination, in the Kindergarten the child distinguishes colour through his constructive occupations and through actual contact with persons, objects, and activities constituting his natural environment. In this connection Froebel, himself, says: "All colour distinctions should be based on natural objects in which these colours prevail most constantly; if they have been understood, they may be transferred to the colours of other objects." In other words the senses as "the organs of mind" are to be awakened through the child's actual socially-laden surroundings and they thus involve the higher intelligent and emotional life.

An objection
to emphasis
on social
meaning
considered

At this point it may be well to consider a possible objection to our claim that only objects and activities which possess some social meaning for the child will appeal strongly to his interest and imagination. It is maintained by some that young children often show delight while engaged in quite meaningless activities. It is shown, for example, that one child may find delight in playing with a mere stick of wood while another on a pile of gravel will find an interest in the mere handling of what must be to him meaningless sand and pebbles. Any one, however, who has had any experience with children in such circumstances, knows that to give the former a knife or the latter a shovel and pail is to increase his *interest* and *attention* tenfold. This results from the fact that he now finds something of real life in his possible occupation, which before was wanting. Dr. Montessori, herself, in one case at least, recognizes the truth; for in speaking of her apparatus for the teaching of numeration she expressly states that she found the use of money in making change a very interesting means, and one which held the attention of the pupils. This, it cannot be denied, is an acknowledgment of the superior educative value of materials which possess a social meaning for the child.

In relation to this problem of the use of the whole life objects and activities in the child's surroundings, Froebel states his views as follows:

"The pupil will get the clearest insight into the character of things, of nature and surroundings, if he sees and studies them in their natural connection."

"The boy will see most clearly and appreciate most fully, the conditions and relations of objects that are in closest and most constant connection with him, that owe their being to him, or at least have in their being some reference to him. These are the things of his nearest surroundings."

"The study of surroundings has this peculiarity that all the studies of particular things or classes of things branch out from it at certain necessary places, like the buds on the bough of a tree. This will be seen again and again in a *natural and rational course of instruction*."

"Without a knowledge of this unity in the *activities and forms of nature*, it is impossible to attain or to impart a genuine knowledge of natural history."

"All fragmentary study of nature . . . deprives natural objects and nature of life, and impairs the vigour of the human mind."

"Nothing is more dangerous to the health of the intellect, nothing is more prejudicial to the culture of heart than the habit of looking at particular objects and events in detachment from the great whole of life."

Formal
didactic
material
neglects
study of
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From these statements it is evident that to equip schools with a mass of formal didactic material for purposes of sense training, would be almost certain to lead to a neglect of the study of the local environment as a type of whole life, which is found so valuable in our present elemen-

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tary education. Dr. Montessori certainly says that the child will apply in a spontaneous way to the observation of his surroundings these pre-analysed ideas which he obtains from the didactic exercises. How this is to come about, however, the author has not made clear; for in the pre-analysed elements the child obtains only the sensation qualities. It is, however, to the motive or social significance of his surroundings that the child must have his attention especially directed, in order to appreciate their living connections, and thus obtain from them stimulation and suggestion for further study.

It would no doubt be most unfair to Dr. Montessori to claim that when personally she does not recognize the importance of *socializing* the child's experiences. From various statements in her book it is evident that at a later stage in the child's education she would give much attention to this problem. She says, for instance, that it is "from a social standpoint" that she aims "to *prepare* the individual for his environment," but claims that the individual must be prepared for this through an earlier development of his *psychic energies*. But it is during the very elementary stage of education that the child's interest in the whole life surroundings, and in their social significance is to be especially emphasized, and at no period of the process can the aim of education be made a mere problem of psychological or mental gymnastics.

To appreciate from the standpoint of the interest and imagination ^{some} ^{of} ^{the} ^{child's} ^{occupa-} ^{tions} ^{and} ^{activities} ^{which} ^{possess} ^{for} ^{him} ^a ^{social} ^{significance}, it might be ⁽¹⁾ ^{the} ^{best} ^{and} ^{most} ^{useful} ^{and} ^{interesting} ^{method} ^{to} ^{examine} ^{more} ^{particularly} ^{some} ^{of} ^{the} ^{occupations} ⁱⁿ ^{which} ^{the} ^{children} ^{of} ^{our} ^{Kindergarten} ^{and} ^{primary} ^{grades} ^{commonly} ^{engag-} ⁱⁿ. In the Kindergarten ⁽²⁾ ^{Gifts} the child discovers in symbolic form his ^{ex-} ^{per-} ^{sonal} ^{environment} and thus connects in an intelligent way the concrete world of significant objects about him; the cylinder, for example, becoming a ruler, a candle, a roller, or a rolling-pin. But in his occupations he further gives expression to his appreciation of these common things and recognizes even more fully his connection with the connected life of his objective world. When, for instance, the child meets the square in paper, by folding it once along the diagonal, it becomes to him a book in which he may draw or place pictures, or a screen with which he may shield objects. As an outgrowth from the preceding, his creative instinct may, by the law of social interpretation, suggest further elaborations representing the common objects with which he is surrounded, as, for example, the window, picture, table, tent, etc. In all these occupations, moreover, the child is intensely interested, since both his mind and his hands are busy giving expression to his own creations.

It has been seen in the sense exercises that a child may, ⁽²⁾ ^{con-} ^{structive} ^{exercises} ^{from} ^{his} ^{contact} ^{with} ^{the} ^{somewhat} ^{meaningless} ^{insets}, obtain ^{constructive} ^{exercises} ^{such} ^{notions} ^{as} ^{square} ^{and} ^{triangle}. In our constructive lessons, on the other hand, the pupil will perhaps proceed to construct from a square paper a triangular wall-pocket, thus obtaining notions of these forms in connection with constructive processes. The object itself, moreover, in addition to giving significance to the mathematical forms, may be associated by the child in an imaginative way with both his home life, and with the season of the year, as when he constructs the

case as a Christmas or birthday present for a member of his family. It will be noted in this regard that the meaningless and fixed character of the materials used in the sense exercises eliminate these possible co-ordinations with the home and the various seasons of the year which add so much interest and imagination to the constructive occupations of our Kindergarten and primary grades.

In a similar way the child will meet the square and the oblong in his construction of the small box, the oblong in the match box, and the cube in constructing the box with lid. As he thus proceeds with such constructions as the house, fireplace, table and furniture, sled, corner bracket, candy-box, may-basket, card tray, etc., he is receiving graded stimuli which lead to the perception of various mathematical forms and dimensions, and is at the same time engaging in processes which touch his whole life interests, thus affording scope for imagination and suggestion. It may also be noticed that these occupations in affording free play to suggestion really give a better means for developing the child's individuality than could possibly be found in the use of such fixed materials as those of the Montessori exercises. This results from the fact that after certain phases of the constructive process have been completed in concert, other phases such as colour and form in decoration, etc., may be left to the individual taste of the child. The fact also that the objects possess a place and meaning in the child's actual environment, causes them to stimulate his imagination through the many suggestions they present in relation to their social uses.

In like manner in the sewing and weaving exercises of the Kindergarten and primary grades, the child obtains graded stimuli of colours, forms, and numbers, combined with *individual invention* in the making of significant objects. For in constructing such forms as the house, barn, shovel, spade, frame, etc., the process is given a social significance which greatly appeals to the imagination of the child, while his individuality finds ample scope through the possible variations in carrying out the process. This would be especially noted in observing the individual tastes displayed by the children in weaving a border for a frame.

In using the building materials of the Kindergarten also, the child, in addition to obtaining a differential perception of graded stimuli of various forms and dimensions, gives free scope to his individuality in constructing significant forms of life and beauty in accordance with his own tastes. This individuality means also much opportunity for suggestion and imagination on the part of the child. When on the other hand the child learns these forms from the more fixed exercises with insets, this free play of his constructive activity is necessarily eliminated. Although, therefore, the author claims individuality as a distinctive characteristic of such exercises, we find in reality that genuine individuality as displayed in a constructive process is largely sacrificed in the exercises with geometric insets for the sake of auto-education and self-correction.

We have already noted in connection with the discrimination of colours, the somewhat meaningless character of the stimulating materials of the sense exercises. In our own colour exercises, on the

other hand, we may have a child proceed, for example, from such a significant object as an orange. First, he may by means of red and yellow paper or crayon, distinguish the three colours, red, yellow, and orange. On this basis he is able, by engaging in an actual process, to discover for himself that the orange colour is produced by blending or mixing the red and the yellow and then proceeds to a representation of the object in colour. Here, in addition to experiencing the large amount of motor activity involved in the process, the child has these done discriminated in relation to a significant object—the orange.

In our nature lessons also the child by being brought into contact with the things of *Nature* finds adequate scope for his feelings and study imagination, and may, if rightly directed, secure adequate stimulation for his senses. In his study of trees and flowers he receives stimulations of form, touch, and colour; in his study of animals, of sound, form, and colour; and in his study of birds, of form, sound, touch, and colour. Through these lessons also he finds

opportunities for inventive exercises suggested through the colours and forms of these natural objects, as when he makes the leaf of clay the unit for constructing a border. Through his exercises in modelling also, various geometric forms as the sphere, hemisphere, etc., are directly co-ordinated with concrete forms of nature and thus given a greater significance than could be obtained through a direct study of these forms by means of arbitrary didactic materials. Dr. Montessori states, to be sure, that they have in the Children's Houses some exercises in clay modelling and drawing to which the children may, if they desire, spontaneously apply themselves. We cannot, however, that such spontaneous constructive work can have the same educative value for children of the kindergarten age as would the more conscious and purposeful exercises outlined above, in which the free activity of the child is at the same time directed to the accomplishment of a definitely conceived problem.

In all such occupations, moreover, since the materials themselves are put through a process, the process itself affords much opportunity for memory, imagination, and judgment on the part of the child, and thus provides, as we have seen, the three elements necessary for adequate sensuous and motor development: namely, sense stimulation, thought and motor expression. The Montessori materials on the other hand, make no adequate provision for the further use of such knowledge as may be gained from the various exercises. It must be evident, therefore, as stated above, that our present occupations, constructive exercises, and nature study lessons form a surer basis for industrial education than would be obtained through the more fixed materials and what we have already shown to be the somewhat meaningless and unrelated processes of the Montessori sense exercises, and their subsequent spontaneous and incidental application.

On the other hand, it has been felt by many of our educators that the transition from the Kindergarten to the primary grades is generally too abrupt. While the exercises of the Kindergarten are, as we have seen, most suitable for giving the child the intellectual and emotional perception of the objects and activities of his surroundings, nevertheless

Possible
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value in the
Montessori
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less, when entering upon the more formal work of the primary grade, he finds too often a gap between the processes used in each. In the primary grades he must proceed to analyse in a more definite way the objects and activities of his surroundings, reconstructing his experiences into more generalized forms and gaining a symbolic control of the content of his knowledge. Thus, by a process of analysis he must be given a more functional control of his already known whole life environment through a more significant and intelligent discrimination of its attributes and relations. The question arises, therefore, whether exercises similar to the above possessing to a reasonable degree the refined sense differentiations of the Montessori exercise could be conducted in connection with the whole life objects and activities of the occupations, nature study objects, and constructive pursuits of the Kindergarten and the primary grades. In an elaboration of such exercises, the scientific features of the Montessori Method would be retained without the use of crude, formal, and meaningless didactic materials, and the child would still view his surroundings from the normal analytic-synthetic attitude of mind. Such exercises, besides satisfying as at present the emotional and imaginative nature of the child through a presentation of interesting forms of life and beauty, might be made to prepare more completely for the different school arts of the primary grades.

SUMMARY

The following is a summary of the Dr. Montessori's argument for the sense exercises, and also of the criticisms of the writer of this treatise:

1. *Since man is to attain to the independent life through a direct mastery of the physical environment, special importance will attach to the education of the senses.*
2. *Inasmuch as individual development depends upon a spontaneous mastery by the individual of opposing forces, the education of the senses must come through their free exercise upon stimulating materials, or must proceed by the method of auto-education.*
3. *The senses are educated when the child is able to perceive differences in graded stimuli independent of the exercise of more complex thought processes as involved in ordinary observation.*
4. *The sense exercise, therefore, is to be conducted solely from the standpoint of securing auto-education by means of graded stimuli and should be simple and objective in character.*
5. *This end is to be gained through the use of specially prepared didactic materials from which all social significance is eliminated.*

CRITICISMS

1. *But man is to master not a mere physical environment but rather a socially laden one; and must, therefore, interpret it not merely through the senses but through feeling, thought, and expression.*
2. *The attempt to educate the senses independently of the acquisition of knowledge is impossible, and rests upon a false assumption as to the nature of knowledge.*

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3. A true education of the senses, therefore, must include more than the mere presentation of graded stimuli from crude materials. It must come from an adequate interpretation by the child of his natural surroundings through an analytic-synthetic process of learning, and should involve not only the senses proper but also the higher thought processes and adequate motor expression.

EXERCISES FOR TEACHING WRITING AND READING

One of the most interesting features of the system is the author's attempt to relate the didactic exercises directly to the formal work of the school in the teaching of reading and writing. This process begins with tracing exercises that involve the use of metal geometric insets, thus leading to the control of the pencil as an instrument of writing through a co-ordination of the muscular movements involved in its use. After this the child articulates the sound of the letter co-ordinately with the tracing of its outline, and, in this way, learns the letter through a co-ordination of visual, tactile, and muscular sensations. Later the results thus obtained are applied in the composition of words, and the results of this process to reading.

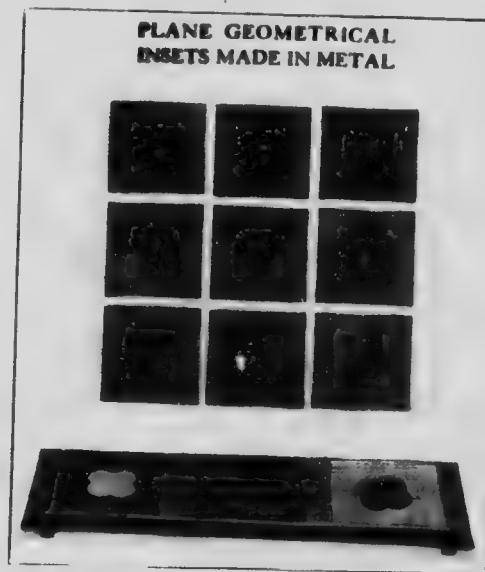
It would be impossible within the limits of the present treatise to give an adequate description of the materials and processes used in these exercises. The following quotations from the author will, however, serve to make the process intelligible. For fuller information the reader should consult the materials or the account given by Dr. Montessori in her own work.

In describing the method and the didactic material used during the first stages of the process the author says:

"The child first takes the metal frame, places it upon a sheet of white paper, and with a coloured pencil draws around the contour of the empty centre."

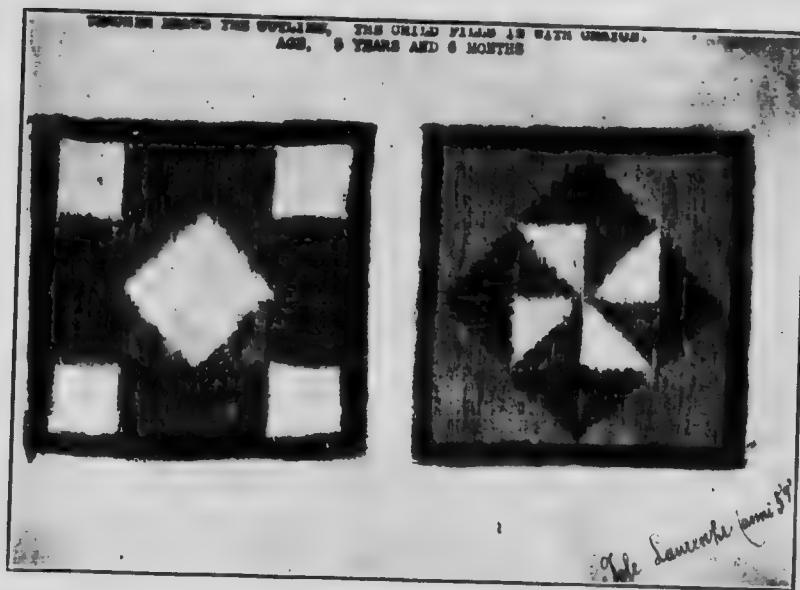
"He now places upon the figure which he himself has drawn, the metal inset. His next act is to follow the contour of the inset with a pencil of a different colour. Lifting the metal piece, he sees the figure reproduced upon the paper, in two colours. Here, for the first time, is born the concept of the geometric figure."

Sense exercises as a basis for the school arts



Metal insets used in teaching writing

When the author states that in the child, who has been perceiving these geometric figures in his early sense exercises, now for the first time is born the abstract concept through tracing the outline, one naturally wonders what her theory is as to the relation of the process of conception to that of perception. But, to proceed:



First step in writing

"After this, he begins the work which directly prepares for the formation of the muscular mechanism relative to the holding and manipulation of the instrument of writing. With a coloured pencil of his own selection, held as the pen is held in writing, he fills in the figure which he has outlined."



Alphabet boxes

After the child has been led to master the use of the pencil, he next ^{Learning the alphabetic symbols} proceeds with the alphabetic signs. Here cards are used upon which sandpaper letters are mounted—the vowels in light-coloured sandpaper mounted upon dark cards and the consonants in black sandpaper upon white cards. It may be mentioned here that plush would furnish a much more pleasing mounting for this purpose, than does such artistic material as sandpaper. This part of the exercise is thus described:

The directress presents to the child two of the cards upon which vowels are mounted (or two of the consonants, as the case may be). . . . As soon as we have given the sound of a letter we have the child trace it.

"There develop, contemporaneously, three sensations when the directress shows the letter to the child and has him trace it; the visual sensation, the tactile sensation, and the muscular sensation. In this way the image of the graphic sign is fixed in a much shorter space of time than when it was, according to ordinary methods, acquired only through the visual image."

"In teaching the consonants, the directress pronounces only the sound, and as soon as she has done so unites with a vowel, pronouncing the syllable thus formed and alternating this little exercise by the use of different vowels. She must always be careful to emphasize the sound of the consonant, repeating it by itself, as, for example, *m, m, m, ma, me, mi, m, m*. When the child repeats the sound he isolates it, and then accompanies it with the vowel."

The passage from the above exercises which provides for the recognition and naming of the letters to that of word composition is described as follows:

"As soon as the child knows some of the vowels and the consonants we place before him the big box containing all the vowels and the consonants which he knows. The directress pronounces very clearly a word; for example, 'mama' brings out the sound of the *m* very distinctly, repeating the sounds a number of times. Almost always the little one with an impulsive movement seizes an *m* and places it upon the table. The directress repeats 'ma—ma.' The child selects the *a* and places it near the *m*. He then composes the other syllable very easily. But the reading of the word which he has composed is not so easy. Indeed, he generally succeeds in reading it after a certain effort. In this case I help the child, urging him to read, and reading the word with him once or twice, always pronouncing very distinctly *mama, mama*."

The important principle underlying these various stages will at once be recognized by our teachers as that of having the child learn through as many types of images as possible. This mode of teaching writing and word recognition is really in common use among our primary teachers, as is seen in our tracing exercises, etc. The distinguishing features of the Montessori Method may, however, be stated as follows:

1. The writing is based upon earlier muscular and visual exercises.
2. Writing precedes word recognition.
3. Word recognition is approached by the method of *phonic synthesis*.

The first of these aspects, although it involves a much more elaborate use of didactic materials than seems necessary, is a phase of the process which will no doubt appeal to our primary teachers. At least it gives an orderly method for conducting a stage of the learning process which, while it is in general use among us, has not perhaps been adequately formulated. The second and third phases of the Method, however, are likely to be objected to by the scientific educator.

Dr. Montessori gives as a reason for teaching writing before reading the fact that writing naturally precedes reading, and, further, that the art of composition should precede logical reading. Under this head she ^{Author's reasons for order of stages} says:



(a) Tracing letters
(b) Making words with cardboard script

"Experience has taught me to distinguish clearly between writing and reading, and has shown me that the two acts are not absolutely contemporaneous. Contrary to the usually accepted idea, writing precedes reading."

"Before the child can understand and enjoy a book, the logical language must be established in him. Between knowing how to read the words, and how to read the sense, of a book, there lies the same distance that exists between knowing how to pronounce a word and how to make a speech."

"Experience has shown us that composition must precede logical reading, as writing preceded the reading of the word."

If by these statements the author implies that the teacher should follow the process in the same order in which the process is developed in the history of the race, it would mean the acceptance of the Culture Epoch Theory * in its crudest form. It is not true that the child must in any process follow the order of development as seen in the race, for the child of civilization is always in a position to make short cuts in the acquisition of knowledge. The main value in the theory is that we may find in it a means of understanding the interests of the child. The question then would be: By which method could the process be made to proceed directly from the child's interests?

In this connection it is to be noted that reading and writing, no ^{child's} matter in which order taught, should both be based upon a broad foundation of oral language work including both story and oral composition. ^{Interest in story most natural basis for teaching reading} On the basis of the interests thus established it will be evident that the larger interests of the child are to be found, not in a desire to give alphabetical form to his composition, but in a desire to be able of himself to obtain the story out of the printed page. Dr. Montessori would here, no doubt, object that this will eliminate muscular imagery from the process, and must, therefore, prove objectionable. We shall show, however, in discussing the synthetic feature of the process that such an elimination of muscular imagery is in no sense necessary.

Moreover, it might be well here to warn the modern teacher not to place an over-emphasis upon the importance of muscular co-ordination in the matter of learning reading. Although the muscular sense is important, it must be borne in mind that both by nature and by instinctive tendency, sight and hearing are pre-eminently the intellectual senses. In the working of these senses themselves there are present, indeed, important muscular co-ordinations. The fact is that a child who learns mainly through the eye and the ear learns with a refinement of muscular discrimination.

As pointed out above, the method of teaching the sounds of the letters before word recognition introduces at once the method of phonic synthesis. Now, whatever results may have been achieved by this method in teaching word recognition in Italian, we know, quite independently of the unscientific character of a purely synthetic method, that phonic synthesis has been found most inadequate in the case of an imperfectly phonetic alphabet such as English. For this reason alone the Montessori Method of teaching reading could not be followed in English-speaking schools. It appears certain, moreover, from the experience of the best

* The Culture Epoch theory claims a close parallelism between the development of the race and of the individual; and by some of its advocates it is assumed that a child should, in learning any process, go through, in their regular order, all the stages involved in the development of the process in the race.

Message of
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primary teachers on this continent, that the best method for teaching reading and writing in our own schools, while keeping to the principle of teaching through as many types of images as possible, eschews both the above-mentioned objectionable features. It may be, however, that we can learn something concerning the co-ordinating of various types of imagery from the experiments of Dr. Montessori.

As to phonic synthesis: It is now generally recognized by English-speaking teachers that the teaching of reading and writing should be based on previous oral language work. On the basis of the story the child may have his attention drawn to the word as a complete whole. From this he is to proceed by the analytic-synthetic method to a phonic mastery of the letters as component elements. In this way the English-speaking teacher complies with two important laws of teaching—proceeding from the whole to the parts, and from the known to the unknown.

In this way, also, the best phases of the Montessori Method can be adopted by using, not letters but whole words upon which the child may begin the muscular co-ordinations which lead to a mastery of the alphabet. Children with us, it may be noted here, acquire skill in the use of the pencil in the correlation of art work with nature study and the constructive occupations. Moreover, ordinary writing is, not the writing of single letters, but the writing of letters combined into a single word. To require the child to begin with the tracing of whole words will, therefore, be a very natural method. As we proceed with the work of phonic analysis, the vague whole of the muscular sense may, co-ordinately with the sound, be analysed into its component movements.

Dr. Montessori seems to argue the validity of her method solely on the premise of certain results in special cases. In connection with the teaching of writing she says:

The Method
measured by
results

"After the first word, the children, with a species of frenzied joy, continued to write everywhere. I saw children crowding about one another at the black-board, and behind the little ones who were standing on the floor another line would form consisting of children mounted upon chairs, so that they might write above the heads of the little ones. In a fury at being thwarted, other children, in order to find a little place where they might write, overturned the chairs upon which their compatriots were mounted. Others ran toward the window shutters or the door, covering them with writing."

Just such enthusiasm on the part of the pupils in connection with this type of work, though displayed in a more orderly way, may, however, be seen any day in the class of every successful primary teacher in the much-abused public school.

In connection with reading also the author says:

"As to the average time required for learning to read and write, experience would seem to show that, starting from the moment in which the child writes, the passage from such an inferior state of the graphic language to the superior state of reading averages a fortnight."

"There is no question of beginning with words that are easy or difficult, for the child already knows how to read any word; that is, he knows how to read the sounds which compose it."

In the light of the last statement, however, the following will sound rather inconsistent:

"And, indeed, the children did not display the same constancy in the reading of books which they showed toward the written slips, since in the books they met with so many unfamiliar words."

From other remarks also, the reader is led to doubt whether the heralded results would really pass with us as ability to read. We meet, for example, with such statements as the following:

"The child who knows how to write, when placed before a word which he must interpret by reading, is silent for a long time, and generally reads the component sounds with the same slowness with which he would have written them."

"In the greater majority of cases the child who writes beautifully, still reads rather poorly."

These, however, are the very weaknesses which have always attended the attempt to approach reading through phonic synthesis.

The last quotations also furnish a very concise illustration of a weakness which often accompanies the teaching of processes in direct accordance with the dictates of the Culture Epoch Theory, which is that the mastery of the earlier process may lead to the formation of habits which require great effort for their unmaking. As a result, indeed, of the early studies of the child's paying so much attention through writing to the letter combinations of the words and thus to the words as complex units, he is almost certain to read slowly and by words rather than by sentences. It is no wonder, therefore, that the author finds in her pupils a great gap "between knowing how to read the words and knowing how to read the sense."

In connection with the tendency to estimate method by individual results, it may be mentioned that the writer of this treatise is acquainted with a youth who at about five years of age was taught the alphabet by his parents, the child obtaining only the sight impressions of the letters and their ordinary names, but not their phonetic sounds. Immediately afterwards a teacher took the child for one-half hour two or three times a week and taught him reading by the word method, and in the course of three months the lad could read with remarkable fluency and intelligence any lesson in the primer, and could spell with remarkable accuracy the words that occur in the lessons. No one would say, however, that this isolated case proves the superiority of teaching reading by the old alphabetic method.

As to the age at which pupils may begin these exercises in writing and reading, the author lays down no special rule. In one connection she states that "almost all the normal children begin to write at four years, and at five know how to read and write." In another, she informs us that "it sometimes happens that certain children, not having spontaneously presented themselves for these lessons, are left in peace, and do not know how to read or write."

The real pedagogical principle, however, underlying the question is that in learning to read and write the child is securing a symbolic control over the content of his already acquired experiences. Until such time, therefore, as the child has developed physiologically to a point that permits a certain freedom in the use of symbols, and until he has secured a sufficiently rich content of experience to make these processes interesting, he might better be devoting his attention to the whole life study of his surroundings, either in the home or in the Kindergarten. It is not the child who starts somewhat late at these processes who is necessarily backward in securing an adequate mastery of the arts.

Elements involved in reading

The above fact becomes very evident on an examination of the elements entering into the reading process. Whether taught before or after writing, reading involves at least three component elements which must be associated by the child in different ways, these are:

1. The thought or idea forming the experience of the child.
2. The vocal or speech sound which constitutes the phonic representation of the thought or idea through the sense of hearing.
3. The written or graphic sign which symbolizes through sight or touch both the sound and the thought or idea.

Order of development

As the child is supposed to have associated by imitation the ideas and the sounds in learning his spoken language, the first step in the process of learning to read will consist largely in having him associate accurately the written or graphic signs with sounds, that is with spoken language. After the child has secured facility in passing from the written symbol to the sound, he must, at least for intelligent oral reading, pass readily from written or graphic signs to sounds through the ideas. This demands a ready control over a double association of the three elements—signs with ideas and ideas with sounds. Now, it is an accepted law in physiological psychology that until such times as the nerve cells of the young child gain sufficient development through the growth of their connecting fibres, he is not ready physiologically to form such associations as are necessary for an intelligent use of graphic symbols in reading. Neither is he likely for the same reason to have a sufficiently rich experience to make the work of reading an interesting process.

How writing should be introduced

It might seem, in the light of the above facts, that, as suggested by Dr. Montessori, there is some ground for teaching writing before reading, since the aim would be to associate simply sound and symbol, independently of the idea or thought. But it must be borne in mind that it is the idea which is most vital to the child and, therefore, possesses the greatest interest for him; and that with these ideas are already associated the word sounds which represent them. On the other hand, neither the letter signs nor the letter sounds, which Dr. Montessori aims to teach first, are real elements in the child's former experiences and must accordingly be lacking in interest. Since the association of sound and idea is already firmly fixed within the child's experiences, it seems more rational in teaching reading, first to associate the written whole word sign with the sound, taking very familiar words. If, therefore, the process of writing is to be introduced, it is evident, as stated above, that it should be in direct conjunction with this first step in reading and should consist at first in using, not letters, but whole words. It is to be borne in mind, moreover, that a practical use of the art of writing in expressing one's own thoughts is essentially complex and demands a high power of association. To teach writing to four-year-old children, as is done in the Children's House, with a view of any immediate intelligent use of the acquired skill is, therefore, quite impossible.

In connection with the above problem, it is to the point to state that the author of this treatise has knowledge of a case where a Kindergarten directress devoted some time to making her pupils acquainted with the graphic signs. When later these pupils took up the work in the primary grade, it was noticed that they never referred spontaneously to their

previous acquaintance with the symbols. The cause of this was no doubt largely physiological, the first experiences not having established such associations for the symbols as would provide for their ready and adequate recall.

Why the author should think it necessary to warn primary teachers Author not consistent against the use of pothooks in teaching writing, one is at a loss to understand, unless here again we are to assume that the Italian schools are woefully behind the age. On the other hand, considering the strong emphasis placed in her system upon the synthetic method of teaching, it seems surprising, that she should in this one case rightly enough find the giving of pre-analysed elements to the child so unpedagogical.

It may be stated here that the author presents, also, some didactic Exercises in numeration materials for the teaching of number. These exercises, however, contain nothing of special importance for the teacher who is acquainted with the methods of teaching number work in vogue in the Normal and other Training Schools on this continent. Special mention might be made, however, of the exercises with the ten rods or long stair for teaching numeration up to ten. These rods have already been described in discussing the visual perception of length. In explaining their use for the purpose of teaching numeration the author says:

"Some day, when a child has arranged the rods, placing them in order of length, we have him count the red and blue signs, beginning with the smallest piece; that is, one; one, two; one, two, three; etc., always going back to one in the counting of each rod. . . . "We then have him name the single rods from the shortest to the longest, according to the total number of the sections which each contains."

"Having mixed the rods upon a carpet, the directress selects one, and showing it to the child, has him count the sections; for example, 5. She then asks him to give her the one next in length. He selects it by his eye, and the directress has him verify his choice by placing the two pieces side by side and by counting the sections."

After the children have thus learned to name the rods by the numbers they represent, the rods are further used in teaching combinations of numbers up to ten. The following quotations from the author will explain some of these processes:

"The first exercise consists of trying to put the shorter pieces together in such a way as to form tens. This may be accompanied by the commands, 'Take one and add it to nine; take two and add it to eight; take three and add it to seven; take four and add it to six.' The exercises are repeated and gradually the child is taught the more technical language; nine plus one equals ten; eight plus two equals ten, etc."



(a) Long stair for teaching numeration up to ten
(b) Counting case

THE MONTESSORI METHOD.

"When all this is well learned and has been put upon the paper with great pleasure by the children, we call their attention to the work which is done when the pieces grouped together to form tens are taken apart, and put back in their original positions. From the ten last formed we take away four, and six remains; from the next we take away three, and seven remains; from the next two, and eight remains; from the last, we take away one, and nine remains."

GYMNASICS

Author
objects to
collective
exercises

In the attitude of the author toward the question of muscular education we again see the marked influence of the underlying theories of her system. Starting from the principle that all development should proceed from free spontaneous activity and that such free activity must necessarily call for individuality in the exercise, she pronounces against all forms of collective exercises. Of such an exercise she says:

"It has as its aim that children shall learn to follow definite ordered movements given in the form of commands. The guiding spirit in such gymnastics is coercion, and I feel that such exercises repress spontaneous movements and impose others in their place. I do not know what the psychological authority for the selection of these imposed movements is."

Class
exercises
valuable

When the author states that she knows no psychological authority for these collective movements, any one at all acquainted with such exercises as conducted in our own schools, cannot but wonder what type of collective exercises is in use in the ordinary Italian school. Even the most casual observation of a class of young children engaged in suitable exercises under a capable teacher will convince any one that the social and co-operative instincts are being strongly appealed to. Quite independently, therefore, of their value for purposes of purely physical education, these exercises teach the children a useful lesson regarding unity of action. Moreover, their aesthetic sense is cultivated to a marked degree through the rhythm. And when the exercise is conducted in conjunction with music, as is so often done on this continent, its value is greatly enhanced. This fact one might learn even from primitive people, and still more forcibly from the ancient Greeks.

House
suggestion
not necessarily
coercive

As regards co-operative work the author seems to be obsessed by a fixed idea that every action proceeding from outer suggestion is necessarily coercive. To hundreds of normal children, confinement in the Children's House even with the whole range of dead, didactic materials to choose from would seem positive coercion compared with joining their companions in controlled rhythmic muscular exercises. In practical life coercion is not a mere fact but a relation, and the so-called commands are not coercive unless they directly interfere with the legitimate aims of the individual. This Dr. Montessori admits in dealing with the problem of discipline. But surely to suggest to a child the doing of a right action is at least no more coercion and no more interference with spontaneous activity than would be the forbidding of a wrong one. Moreover, any one conducting class exercises in gymnastics will realize that in being forbidden to join with their companions, not in following these commands, ninety-nine children out of the hundred would find coercion.

Value of
musical
rhythm and
rhythmic
movements

It is a peculiar commentary on the above quotation from Dr. Montessori's work that under musical education, the author herself, speaking of the work of one of her directresses, writes as follows:

"On a basis of rhythm she has arranged simple little dances with the intention of studying the influence of the rhythm itself upon the coordination of muscular movements. She was greatly surprised to discover the educational disciplinary effect of such music. Her children, who had been led with great wisdom and art through liberty to a spontaneous ordering of their acts and movements, had, nevertheless, lived in the streets and courts, and had an almost universal habit of jumping."

It may be noticed further that, in the author's treatment of the ^{pattern of} relation of music to the development of rhythmic muscular movements ^{the Law of} she has made an implicit denial of her law of *development through liberty*. For she states in regard to the condition of the children before taking these exercises that they "had been led with great wisdom and art *through liberty* to a spontaneous ordering of their acts," yet she is compelled to add that "they had an ^{almost} universal habit of jumping." Surely this is a serious commentary upon the effectiveness of liberty and spontaneity.

Moreover, when the author speaks of the influence of the rhythm of the music upon muscular co-ordinations she seems to imply that rhythm is thereby added directly to these movements; for, speaking of the effect of music, she says: it will "awaken a sense of rhythm, and give the impulse toward calm and co-ordinate movements."

The fact, however, is that rhythm or measured motion is a law ^{rhythmic} _{of our nature} of both our physical and our psychic nature. The reflexive acts of our organism are inherited instinctive acts, which endow us with combined harmonious or rhythmic actions. Moreover, the muscular organism is endowed with a law which tends to produce harmonious movement between the various parts of the body, and also in the rate of their movements. As a part, therefore, of the development of our aesthetic experience, muscular rhythm is not *given* us by external rhythm, though its development into an aesthetic judgment will be aided thereby. For this reason, in co-ordinating musical rhythm with muscular movements our best teachers use the former only as an accessory and are careful to see that the children have a conscious mastery of the movements, independently of stimulation through the rhythm of music. Viewed in the light of the above, one cannot but wonder what Dr. Montessori means when she says of the above experiment, that "it was certainly a beautiful *triumph of our method*."

Another interesting aspect of the author's theory of muscular education shows itself in connection with her treatment of the subjects of special gymnastic exercises. Because the ordinary ^{objects to} _{special} ^{gymnastic} _{classes} exercises of the school may bring certain muscles more prominently into activity than others, the author sees a similarity between these exercises and those used in medical gymnastics for the development of torpid or paralyzed muscles. But as the muscles of ordinary children are in a normal state, they seem to the author to require no special type of development, and she cannot see "what office such exercises can fulfil when they are followed by squadrons of normal children." In place of such exercises, therefore, the children are to be given free and educational gymnastics. The former resemble the games in use in our Kindergarten and primary grades, but seem inferior to them from an educational standpoint. The latter consist of certain activities in connection with the school garden and the muscular exercises connected

THE MONTESSORI METHOD.

with the didactic materials, such as the buttoning and lacing frames, which "prepare the children for the exercises of practical life."

Notwithstanding her objection, however, to formal gymnastic exercises for normal children, Dr. Montessori has in another way found a ground for introducing special gymnastics and special gymnastic apparatus into the school for the use of the normal child. And here, again, we see strongly reflected the influence of her experiences in the education of defectives. Noticing that the normal morphological growth of the child's body does not reflect the normal proportions of adult life, but shows a torso greatly developed in comparison with the lower limbs; she has provided special apparatus to aid in the growth of the relatively undeveloped parts. As an example of such apparatus may be mentioned the trampolino, a type of swing so hung that in swinging themselves the children may press their feet against a wall, thus exercising their lower limbs, which, as we have said, are relatively undeveloped. This type of apparatus, however, is by no means unknown in our gymnasiums.

When such special apparatus is provided to assist the development of the relatively undeveloped portions of the body of a normal child, it is difficult for the layman to see why it should be positively harmful to allow the use of reasonable exercises for other parts of the body which are still undeveloped, though to a less degree. Neither does it clearly appear, if these other parts may develop through free gymnastics without the use of special apparatus, why the relatively more undeveloped parts may not also be left to nature and to free gymnastics.

In addition to the above types of exercise, there are in use in the Children's Houses respiratory gymnastic exercises. These, however, present no features which would appear new to our teachers, except, perhaps, that they especially stress the exercises for articulation in use in our classes for defectives. This seems to contradict Dr. Montessori's previous objection to medical gymnastics for normal children.

EXERCISES OF PRACTICAL LIFE

In addition, however, to the exercises based upon selected didactic materials which provide for special pedagogical experiments, there is in the Children's Houses another type of exercise which may justly claim to avoid the formal and arbitrary features referred to in connection with the other materials. These are known as the "Exercises of Practical Life," and are found to reflect more fully than the purely didactic exercises, the conditions of ordinary home life. To appreciate the opportunity afforded in the Children's House for such exercises, one need only recall the length of the school-day, which in summer may extend from eight in the morning to six in the evening. During this period certain special elements of home life necessarily enter, including the nap and the luncheon.

The following are the phases of practical home life which are emphasized in these exercises:

1. **Cleanliness.**—This is carried on partly by inspection, where the attention of the pupil is directly called to the condition of his person and garments; partly by teaching the children how to wash

Author makes an exception

Exception seems illogical

Approves of respiratory gymnastics

Types of exercises:
Cleanliness



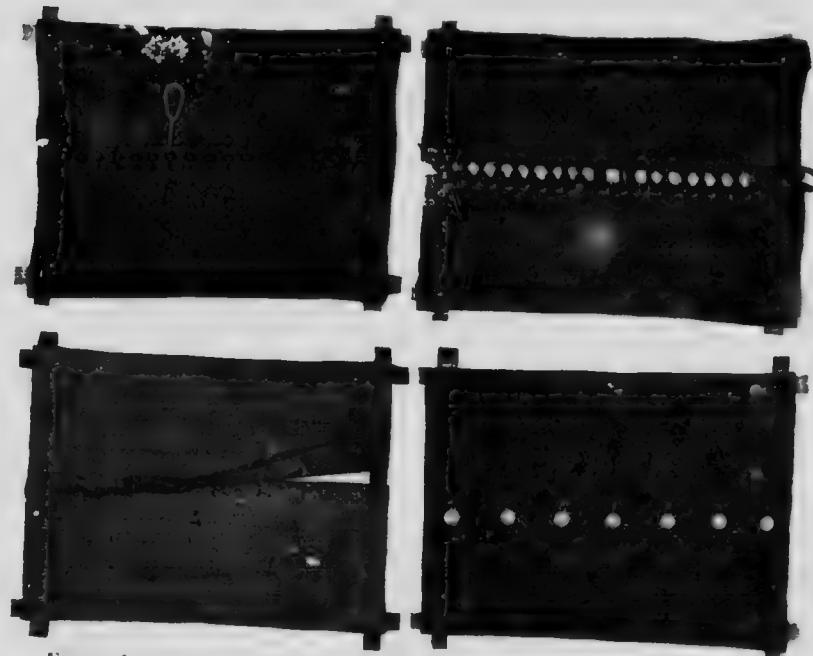
(a) Children learning to lace and button
(b) Button and ribbon frames

Care of
the roomConversa-
tionPrepara-
tory to
Practical
Life

their hands, clean their nails, attend to their hair, etc. For these purposes necessary furniture and materials are provided within the school.

2. Care of the Room.—Here, the children are called upon to see if the furniture and materials are in order and clean. This phase includes such practical exercises as dusting, sweeping, arranging the furniture, etc.

3. Conversation.—After the room has been set in order, and the children have been brought to attention by means of a series of exercises, the teacher invites them to join in a free conversation with her about such topics as enter into their experiences. This phase develops the children's language, and enables the teacher to direct their attention to desirable topics. These exercises, which, of course, merely represent the Morning Talk of our own Kindergarten and primary grade, fill up a portion of each morning before the children pass to their individual lessons.



Frames for exercises preparatory to practical life: (a) shoe button; (b) facing; (c) hooks and eyes; (d) large buttons

4. Exercises Preparatory to Practical Life.—In these exercises the children learn to lace, button, hook, and tie, and thus master in a way the movements necessary to dressing and undressing themselves. The apparatus, as already noted, consists of wooden frames upon which are mounted two pieces of cloth or leather. These pieces are fastened together either by large bone buttons, small pearl buttons, shoe buttons, eyelets and shoe laces, broad ribbon, hooks and eyes, or automatic fasteners. The accompanying illustrations will sufficiently explain these articles and their pedagogical purpose.

5. Luncheon. —Another phase of practical life with which the exercises bring the child in direct contact within the Children's House is the luncheon. These exercises consist, for example, in preparing the table, arranging the linen, the teaching of table etiquette, etc. Here, also, the author finds a reason why the Children's House should supersede the home as an educative force within the life of the child during the early years of his life. Her contention is that two meals could be given within the House in which the children should be "kept to vigorous diet, in order that they may enjoy good health and have an excellent digestion." To quote her own words: "In order to protect the child's development, especially in neighbourhoods where standards of child hygiene are not yet prevalent in the home, it would be well if a large part at least of the child's diet could be intrusted to the school."

The following from the Schedule of Hours in the Children's Houses will show the place occupied by the exercises of practical life: ^{Provision in Schedule of hours for practical exercises}

A.M. 9:00-10:00. Entrance, Greeting. Inspection as to personal cleanliness. Exercises of practical life: helping one another to take off and put on the aprons. Going over the room to see that everything is dusted and in order. Language: Conversation period: Children give an account of the events of the day before. Religious exercises.

P.M. 1:00-2:00. Directed games, if possible, in the open air. During this period the older children in turn go through with the exercises of practical life, cleaning the room, dusting, putting the material in order. General inspection for cleanliness: Conversation.

In describing the exercises of practical life, the author says in part:

"In the class the teacher, by using a little washstand with small pitchers and basins, teaches the children to take a partial bath: for example, ^{Author's description of exercises} they learn how to wash their hands and clean their nails. Indeed, sometimes we teach them how to take a foot-bath. They are shown especially how to wash their ears and eyes with great care. They are taught to brush their teeth and rinse their mouths carefully. In all of this, we call their attention to the different parts of the body which they are washing, and to the different means which we use in order to cleanse them: clear water for the eyes, soap and water for the hands, the brush for the teeth, etc. We teach the big ones to help the little ones and so encourage the younger children to learn quickly to take care of themselves."

"The teacher shows the children how to clean out the little corners where dust has accumulated, and shows them how to use the various objects necessary in cleaning a room: -dust-cloths, dust-brushes, little brooms, etc. All of this, when the children are allowed to do it by themselves, is very quickly accomplished."

"Another important educative application which school-refection in the 'Children's Houses' has to offer, and which concerns 'practical life,' consists in the preparing of the table, arranging the table linen, learning its nomenclature, etc."

"It is very important to teach them to eat with cleanliness, both with respect to themselves and with respect to their surroundings (not to soil their napkins, etc.), and to use the table implements (which, at least, for the little ones, are limited to the spoon and for the larger children, extended to the fork and knife)."

In the method of these practical exercises one cannot but feel that ^{how the exercises are conducted} in the attitude of the teacher toward the pupils, the author has allowed a large departure from the law of liberty and spontaneity. The results seem to be accomplished almost solely by direct injunction, information



Exercise with geometric insects

evidently being given by the arbitrary intervention of the teacher. We find, for example, that when there is any uncleanliness, the teacher calls the children's attention to the fault. They are also shown by the teacher "how to wash their ears and eyes with great care," and their attention is called to "the various parts of the body which they are washing." They are further told the means used to cleanse the parts washed. Nor is this passive conveyance of information felt to be harmful; for we are told that the children *soon become* "accustomed to observing themselves and *take an interest* in their appearance." When, however, the direct instruction thus given by the teacher in the affairs of practical life is found so valuable, one cannot understand why it should be regarded as impossible for the teacher to intervene as an instructor in more didactic exercises, without destroying the active interest of the child. In regard to these exercises of practical life it may be noted further, that the author almost relents in her attitude toward school incentives, for she states that the teacher "calls attention with little exclamations to a child who is clean."

It is largely on the results of these practical exercises that the ^{importance attached to} author and her admirers base their claim that the ^{these exercises} Method of the Children's House should supplant present school practices. Speaking ^{of the} of the wonderful results already achieved the author says:

"Any one who has watched them setting the table must have passed from one surprise to another. Little four-year-old waiters take the knives and forks and spoons and distribute them to the different places; they carry trays holding as many as five water glasses, and finally they go from table to table, carrying big tureens full of hot soup. Not a mistake is made, not a glass is broken, not a drop of soup is spilled. All during the meal unobtrusive little waiters watch the table assiduously; not a child empties his soup plate without being offered more; if he is ready for the next course a waiter briskly carries off his soup plate"; "if we try to think of parallels ⁱⁿ the life of adults, we are reminded of the phenomenon of conversion, of the super-human heightening of the strength of martyrs and apostles, of the constancy of missionaries, of the obedience of monks. Nothing else in the world, except such things, is on a spiritual height equal to the discipline of the 'Children's Houses.'"

These results truly seem remarkable, but, when we examine them ^{Res. in} ^{largely} ^{physical} more closely we are compelled to ask whether they really proceed from a *spiritual height* attained through *psychic* development, or are not rather the result of assiduous training that is largely physical. Any one acquainted with child nature is fully aware of the seemingly wonderful results that may be obtained through physical training without any adequate corresponding development in the mental life. The Chinese by the direct method of imitation are able to obtain even more wonderful results, for with them the child of twelve or thirteen years of age is able to carry on most satisfactorily the domestic duties of the average American home. And even rats and fleas, through constant physical training, have, we know, been trained to perform wonderful feats.

That the skill manifest in the lives of the children may be largely the result of physical habit is evident also from certain of the author's statements. For instance, she says: "These exercises were the only part of the programme which proved thoroughly stationary." Here, of course, will be found an important and essential condition for the formation of physical habits—repetition without variation.

Results do
not neces-
sarily im-
ply intel-
lectual
power

While, therefore, we may admire such results, and may further grant that in this respect these Houses satisfy a local need, we must be cautious before concluding that these results argue the attainment of any marked intellectual power, or that they furnish any justification for a new conception of the function of public education in relation to the home. As a matter of fact, just such results as these are being constantly obtained by our Household Science teachers with slightly older children. Moreover, we are told by such teachers that young children often possess, even when they enter school, just such practical habits as the above, which have been obtained through association with the mother in the duties of the home. These results are praiseworthy, but it is clear that the skill is often more physical than mental. Neither should it be overlooked that the children of our Kindergarten and primary grades are given very similar exercises in the putting on and off of their wraps; and that neatness and cleanliness are especially emphasized in connection with the handling of their constructive and other materials.

The opposition between mere physical and intellectual aptitude is very noticeable in the case of many workmen. So long as the trained workman can follow automatically some duty to which he is accustomed, he will perform it most satisfactorily. But being called upon to perform the duty when it is complicated through any other conditions, he, too, often fails, wasting much time and material through his inability to idealize the new conditions. Such a failure, however, implies a lack of intelligent adjustment; for intelligent adjustment means an ability to idealize the process by which the adjustment is made. This idealizing process, however, need not accompany mere habitual aptitude obtained through repetition, although the results of such aptitude may seem *wonderful*. By intelligent adjustment, not by mere physical aptitude, have the conquests of civilization been achieved, and it is for such an intelligent reflective life that the present educational effort of our school system largely stands.

As it is in connection with these practical exercises also, that the Children's House is claimed to be superior to the ordinary home for the child of the pre-school age, it is well at this point to examine more critically the relative merits of the experiences of each, as they affect the life of the young child.

THE CHILDREN'S HOUSE *versus* THE HOME

Forms of
stimulation:

An examination of the processes by which the child participates in, or becomes conscious of the social life in which he lives will show various important forms of stimuli and responses.

(1) Physical
stimulation
so-called

The child is continually being stimulated by his physical home environment, which includes both natural and manufactured objects. Since, moreover, he makes demands upon them largely from the standpoint of his social needs, it is to their social significance, as we have seen, that his attention is especially drawn. To give the child didactic materials in place of this more general social stimulation does not, then, seem the pedagogical order. It is after the child reads a

social meaning into his environment that the objective world possesses the interest that will compel his attention; and the general significance that will give motive for further interpretation. In the case of the normal child the Montessori type of exercises would, therefore, be used to better advantage after he has become adequately conscious of the social significance of his physical environment through early home experiences. Here, also it is evident, as we have seen before, that the value of the exercises to the normal child lies in their being used in a close, though somewhat subordinate relation to the ordinary presentations of the school in connection with the child's study of his environment. This point, however, has already been considered in a previous section.

The Children's House will, no doubt, claim that, at least in the ^{stimulation} _{of home} ^{and Children's} _{House} ^{compared} ease of the materials connected with the exercises of practical life, it furnishes general physical stimuli, which will convey more social significance than those of the ordinary home. It must, no doubt, be granted that the House will, in some respects, represent the home environment under perfect conditions, as in the provisions for cleanliness, luncheon, table etiquette, etc. It is evident, however, that the average home occupations will furnish many physical stimuli saturating the life of the average boy as he observes the various processes going on therein that are not to be found in the practical exercises of the Children's House. Our conclusion, accordingly, is that there is no adequate reason here why under normal conditions our children of the pre-school age should not be left completely to the care of the home.

In addition, however, to direct stimulation from the physical environment, the child within the home is continually receiving stimulations and making responses in connection with his human environment—his mother, father, sister, brother, neighbour, etc. These stimulations soon make demands upon him, which call for definite reactions on his part, thus leading to conduct. For the Children's House, it will, no doubt, be claimed that moral stimuli leading to conduct will be better received through the free social life of the Children's House, than in the home. This statement cannot, however, be accepted. It must be borne in mind that in interpreting his environment the child must do so, not only intellectually, but also emotionally. Much of this emotional interpretation depends upon home relations. Without, therefore, detracting from the excellent spirit manifested in these schools, we claim that to deprive the young child of the pre-school age of his full share of such stimulation within the home, is to leave an unwarranted gap in his emotional life.

A special feature of the moral saturation is seen in the child's ^{(3) Stimulation} _{acquisition} of his *mother tongue*. Within the home he is continually ^{through language} being stimulated by oral information, advice, and injunction. It is here, especially, that he becomes fully conscious of how his conduct influences others. We have already noted in relation to the Children's House that the teacher is forbidden to convey information by such stimulation, though an exception seems to be made in the case of discipline, so far as concerns the repression of "rough or ill-bred acts," and also in the case of the exercises of practical life. Why a method of stimulation found useful in these latter cases should be positively harmful in

the case of informational exercises is hard to understand. The fact is, that it is in the abuse rather than in the use of telling as a means of stimulation that the danger lies. Much that a young child should know cannot be discovered by direct experience, and much that he might discover by direct experience is best acquired through his being told. In practice, however, a reasonable amount of stimulation through language is actually used within the Children's House.

Moral influence of home injunctions

For purposes of advice, injunction, and reproof, the normal home rather than the school is the best place for the child between the ages of three and five. It is from the mother, and to a less degree from the father, that these injunctions possess the force of a moral precept. It is from the mother, indeed, that the child obtains his first conception of perfection of character. To appreciate the force of this statement it is only necessary for the adult to note with what vividness he has retained the moral lessons of the home, compared with the shadowy impressions of those received from other teachers. From this it follows that it is better to leave the child to the informal education of the normal home up to his fifth year, and after that age to confine him in school at first for only a small part of the day.

(4) Imitation and suggestion

Other very important stimulations are imitation and suggestion. In this case, the child freely chooses out of the acts of those about him, the acts which please him, and reproduces them by imitation. Gradually, however, through this reproduction, the ideas of these actions become more clear and definite, and he modifies his actions to suit his tastes. By this means direct imitation is gradually superseded by inner suggestion, the child thus gaining a selective control over his actions. In this way the process of imagination also enters into his activities, giving him a larger control of the inner life, and he is thus able to grow mentally and morally, independent, in a sense, of those about him.

It must be evident that the didactic exercise with its finely analysed simple and fixed process will not afford any scope for the free play of imitation and suggestion: nor does it appear that the rigid exercises of practical life will afford any better opportunity. It is, no doubt, true that the life of the child in the playground or garden will afford opportunities for this type of stimulation. Judging each on its own merits, however, one cannot but feel that the child of the well-regulated home at five years of age, while perhaps less accurately trained in a few simple processes, will be in possession of a higher life on the imaginative and suggestive side, and will, therefore, have a more fertile imagination, and a more real initiative throughout the whole range of his activities. Whatever contribution, therefore, the method may make to educational practice it does not seem destined in a morally healthy community to supersede the home as an educative agent for the child between the ages of three and five, or to fill up the larger part of the daily life of such children.

A place for the Children's House

While expressing ourselves thus strongly in favour of leaving the child of the normal home to be saturated altogether through the experience of the home during the first five years of his life, it does not necessarily follow that there is no place for such an institution as the Children's House with certain children of the pre-school period. It may reasonably be assumed that in some of our cities even on this con-

tinent there are districts where the children would derive positive benefits from the presence of such an educational agent in the community. In this way also we can believe that these Houses have been found a blessing in the communities where they have already been established. We deny, however, that it may be concluded from this that children of the normal home will derive the same profit by being shut up thus early in a similar institution.

It is questionable, moreover, whether in such exceptional communities the conditions should really furnish an educational problem for the state, or not rather a social or housing problem for the civic authorities. So long, however, as these conditions exist the school will rightly enough attempt to meet and overcome them, and for such educational effort all can agree that Dr. Montessori may bring us many valuable suggestions. Even here, however, there is ground for fear that both owing to the character of its materials and exercises and to the necessity of limiting the number of children in each "House," the expense of this method of providing infant schools for such districts would be found deterrent. With so much fixed materials there would be serious danger in their general use from the standpoint of contagious disease, if these schools were not frequently provided with a large amount of new apparatus. And last but not least, for such a school only skilful trained teachers should be engaged, and even the skilful directress could not be expected to serve as both an educational and a practical mother for more than fifteen or twenty infants. It must not of course be assumed that a new system of education is to be rejected merely from a consideration of its expense. If such a system clearly presents well-tried desirable features, these should be secured at all hazards, at least within reasonable limits. The problem of cost does, however, justify us in refraining from a too hurried adoption of new theories on the mere evidence of admiring observers. Having regard to the pedagogical value of enthusiasm, there is, perhaps, no system of education but could find justification through its actual success as seen in the achievements of its enthusiastic teachers. But to be carried away by our admiration of such incidental achievements would be to imitate the two Athenians in the come^{dy} of the "Birds," and "lose ourselves threading the path to and fro in vain."

Here we may consider also the possibility of using the Montessori materials as educational instruments within the normal home. If the home would seem desirable, in a home where parents do not direct the informal processes of home education, to give the child the advantage of the auto-education to be derived from certain of these exercises. By this means, he would perhaps have an opportunity of gaining, in addition to the educative influence of his ordinary environment, certain physiological co-ordinations and certain differential perceptions not likely to be met in so orderly a way in the other home experiences. In such homes, however, the child would, it appears certain, in the absence of any proper supervision of his exercises, treat these materials merely as ordinary playthings, and might not take sufficient continuous interest in the exercises to learn the intended lessons. Moreover, as already noted, unless sense stimulation is accompanied with higher

thought processes and with expression, no adequate associations are likely to be formed within the nervous system. In this way the results would no doubt differ little from those obtained by the child through his ordinary toys, and indeed might not be so valuable, since many of his toys, being more closely associated with the home objects and activities, would do more for him through suggestion and imagination. The cost of the apparatus *also under present conditions presents a practical difficulty in the way of its introduction into the very schools and homes where its benefits would in all probability be greatest.

CONCLUSION

In concluding this brief survey of the leading principles and practices of the Montessori system, we are naturally led to inquire in what ways this Method may contribute to our own educational practice. Our modern systems of education are essentially and necessarily eclectic, and while holding fast to that which is good in ourselves, we must be willing to test that which seems good in others. As already pointed out, it may be found desirable to formulate more definitely some of the present materials of certain portions of our elementary work in accordance with the principles of the so-called Montessori Method. This Method is, indeed, merely the *objective* method of teaching formulated more definitely from the standpoint of Experimental Psychology; and it may accordingly suggest to us how to provide more exact exercises in sense discrimination in the use of our present educative materials. But there would be no justification for taking up the time of our junior pupils with the large amount of meaningless didactic materials provided in the system. It is, of course, also possible that we may find in the system some collateral materials as well, which could be used to advantage in conjunction with the materials of our present elementary education. This question is a practical one, and would furnish an interesting and legitimate problem for solution by our Normal and Model School staffs.

In spite of the evident fallacies underlying her conception of development through liberty, Dr. Montessori's vivid and enthusiastic

*On this continent the Didactic Apparatus of the Montessori Method is manufactured and sold at \$50. F.O.B., by THE HOUSE OF CHILDHOOD, 200 Fifth Avenue, New York City. When imported into Canada for educational institutions, it enters free of duty. It is sold by the Geo. M. Hendry Co., Ltd., Toronto.

The manufacturers make the following announcement:

One complete set of the apparatus is sufficient equipment for a class room of thirty children. The apparatus covers a complete graded course in sensory and motor training, and for the teaching of a single child the same apparatus is required. In the class room each of the children uses every part of the apparatus, but they do not use it at the same time, since the work is individual.

It is at Madame Montessori's request that the apparatus be kept together as a complete method or system. No real educational end will be served by any attempt to use isolated parts of this apparatus.

Madame Montessori's book may be purchased separately, and where it is so purchased by direct order from The House of Childhood, the purchaser is entitled to a deduction of its net cost, should he desire to purchase the materials at any later date.

re-statement, from a somewhat new standpoint, of what is recognized among us as an accepted principle, may, nevertheless, give the law a new significance to some of our teachers. One cannot but feel, indeed, from the earnest enthusiasm with which Dr. Montessori proclaims the principle, that it may appear in her own country, not as a re-statement of an accepted principle, but as a prophetic vision. But whatever may be the conditions in Europe, on this continent at least, the implied repression of the legitimate self-activity of the young child is not found in the practices of our well trained kindergarten and other elementary teachers.

Looking at the system as a whole, we have reached the conclusion that there is no reason why the child between the ages of three and five in a healthy social environment should be robbed of its superior social and spiritual influences for the doubtful benefits of the Children's House. Nor do we believe that this Method has in any sense organized as an educational instrument a community home that can, except in abnormal circumstances, compensate the young child of school age for any large loss of the family environment. Indeed, we feel justified in predicting that time will manifest that the freer and more spontaneous life of the average rural and urban home will develop a type of childhood, which even after enduring this repression of the "common school," which has so obsessed the author, will excel, both in the higher branches of education and in the after labours of life, the average pupils of the Children's House.

It is evident, moreover, that a general system of education, based on the one-sided biological and individualistic conception of life so manifest in this system is most unlikely to supersede the more social and reflective efforts of even the "decadent school" of to-day. And, although the author of the system declares with pardonable enthusiasm that her pupils are "noticeably different from those who have grown up within the gray walls of the common schools," and that she "should found an elementary school, worthy to receive them and to guide them further along the path of life and of civilization," it does not seem probable that any important reconstruction of our present educational ideals and practices can follow from a study of the Children's House or its methods.*

*NOTE: The writer of this treatise has examined the method from the standpoint of pedagogical philosophy. It is well, however, to add here the testimony of some who have used the materials and the Method in their school work:

During a recent visit to a number of Normal and other schools in the United States, the writer had an opportunity of inspecting the Montessori Apparatus and of seeing some of it in actual use also; he met a number of Kindergarten and primary teachers who were more or less acquainted with the materials and their purpose. As to the sense exercises, it was generally considered that they were too individualistic and lacking in interest for the average American five or six-year-old child to hold his attention for any length of time. The exercises preparatory for practical life, such as the buttoning and other frames, were found of little practical value, as the child usually possessed the requisite skill through the home education. Within the school also, especially in cases where a swimming-pool was provided, the child, it was felt, received more vital exercise in connection with the putting on and taking off of his own wearing apparel.

When visiting a primary grade, the writer had an opportunity of seeing in use some of the materials connected with the teaching of writing. The teacher reported that she found them valuable only in direct connection with the teaching of reading, and of phonic analysis. While the class were reasonably interested in the use of the material, the writer could not see that their interest was greater or their activity more spontaneous than that usually displayed by our own classes in the corresponding exercises under the direction of a well-qualified primary teacher.

Some kindergarten directors who had made a study of the method and its materials declared that to them its chief value had been that, partly by its positive qualities, but more largely by its negative ones, it had reaffirmed their faith in the Froebelian method and materials.